UNCERTAINTIES IN FORMULATING MONETARY POLICY

Y 4.G 74/7:M 74/2

Uncertainties in Formulating Moneta...

HEARING

BEFORE THE

COMMERCE, CONSUMER, AND MONETARY AFFAIRS SUBCOMMITTEE

OF THE

COMMITTEE ON GOVERNMENT OPERATIONS HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

AUGUST 10, 1994

Printed for the use of the Committee on Government Operations

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UNCERTAINTIES IN FORMULATING MONETARY POLICY

WEDNESDAY, AUGUST 10, 1994

HOUSE OF REPRESENTATIVES,
COMMERCE, CONSUMER, AND
MONETARY AFFAIRS SUBCOMMITTEE
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room 2247, Rayburn House Office Building, Hon. John M. Spratt, Jr. (chairman of the subcommittee), presiding.

Present: Representatives John M. Spratt, Jr., Marjorie Margolies-Mezvinsky, Gene Green, C. Christopher Cox, Christopher Shays, and Stephen Horn.

Also present: Thomas S. Kahn, chief counsel; Donald P. Tucker, chief economist; Richard W. Peterson, senior counsel; Faye Ballard, clerk; and Doug Riggs, minority professional staff, Committee on Government Operations.

OPENING STATEMENT OF CHAIRMAN SPRATT

Mr. SPRATT. I would like to call the committee meeting to order and warmly welcome Alan Greenspan, the Chairman of the Federal Reserve Board.

Mr. Greenspan, we also want to thank you and your staff for the time, care, and diligent attention that you have devoted in preparing for the hearing. We very much appreciate it.

In addition, we want to welcome three of the country's most distinguished economists: Stephen Axilrod, who was until recently vice chairman of Nikko Securities and prior to that served as Staff Director for Monetary and Financial Policy for the Federal Reserve Board; Mr. David Wyss is director of research at DRI/McGraw-Hill; and Dr. Rudi Dornbusch is Ford international professor of economics at MIT.

Today, we take up some long-standing critical questions. Rather than trying to divine what the next moves of the Fed are going to be—indeed, we have agreed that is not an appropriate line of inquiry—we want to look at more fundamental underlying questions about how the Fed formulates its policy and its conceptual framework for policymaking and the adequacy thereof, and here are some of the concerns that we have and will address in the hearing today.

First of all, do forecasting deficiencies, shortcomings caused by factors such as inadequate or untimely economic knowledge of eco-

nomic structure and economic data, hamper the ability of the Fed to make sound monetary policy?

Second, if we have insufficient data and knowledge about these factors, have these problems gotten worse in recent years or are we coming better to grips with them? In particular, we are wondering about the increased liquidity of international currencies coupled with the growth of new depository instruments and entities like the money market funds and how these make forecasting more difficult.

Third, of course, we want to ask, as a Government Operations subcommittee, what can the Fed, the executive branch, the statistical agencies, and the Congress do to upgrade the quality of monetary and related economic data, particularly including data on international factors that influence currency fluctuations.

And, fourth, fundamentally we want to ask, given the assumption that our economic data are not precise and not always timely, not always adequate, what implications does this hold for monetary policy strategy, for the manner in which policy is made? If you can't discern current trends with precision and if you can't precisely forecast the consequences of your policy actions, what does this dictate for the manner in which these decisions are taken?

The Fed frequently comes to Congress and testifies, but usually the focus is on bottom lines, on things that have immediate relevancy such as interest rates, where they are now and where they are headed and what is the best strategy for handling budget problems, and there are undoubtedly going to be questions on these issues today though we have agreed that it is not appropriate to try to extract from the Chairman what the likely course of interest rate-making policy is going to be in the next several weeks.

However, what we are principally looking for, as I have said, is information on how sound is the underlying analysis and forecasting, the analysis that underlies monetary policymaking itself.

We are going to begin with Chairman Greenspan, and I understand, Mr. Chairman, that you need to be out of here by 11 o'clock at the latest, and we will accommodate you in that respect.

Before we begin with you, however, I want to turn to Mr. Cox and ask him for his opening statement.

Mr. Cox.

Mr. Cox. Thank you very much, Mr. Chairman.

I would like to welcome our witnesses here this morning, in particular Chairman Greenspan who has been very generous with his time—not only before this committee, but before other committees that I serve on, and many others that I don't. Perhaps our hearing this morning should be focused upon whether the Fed can conduct its business if the Fed Chairman must spend most of his time testifying before Congress. In fact, you manage to do both, and we appreciate your willingness to keep us apprised.

This is a particularly opportune time for a discussion of this topic since the Federal Open Market Committee will meet in less than a week to determine its next course of action.

Today's hearing focuses on the question: Is Fed policy, or can it be, based on sufficiently accurate economic and monetary data? This question suggests an even more important and more basic line of inquiry: What can the Fed do, and what can it not do well? What

is the proper role of the Federal Reserve in our overall economic structure?

An argument can be made, and will be by some of our witnesses, that the economy has become too complex, too intricate, to be micromanaged with a central bank magic wand. Each branch of government, each sector of the economy, and each specific industry has its own role to play in our economy. Congress has clearly, in my view, exceeded its own mandate. The current administration and the current Congress are seeking to impose their will upon the private sector at every turn.

The Fed, for its part, has increasingly had the opportunity to become involved not only in monetary policy but in fiscal policy, and there is some legitimate question whether the tools available to the Fed for this purpose are adequate to the task.

On the more basic question of the kinds of data that the Federal Reserve is forced in many cases to rely upon to gauge the performance of the economy, we had some interesting news at the Joint Economic Committee just yesterday. The Congressional Research Service reported to us that one particularly crucial economic measurement may be out of kilter. Unemployment statistics compiled through the Household Survey, the bimonthly survey of 60,000 American households, indicate that employment has fallen by 420,000 during the past 2 months. The Establishment Survey, on the other hand, indicates an increase of 410,000 jobs. The combined spread is a discrepancy of more than 800,000 jobs. These are the kinds of things that I am sure we will hear more about during our hearing.

I look forward to our witnesses' testimony on these important issues and look forward immediately to your testimony, Mr. Chairman.

Mr. SPRATT. Thank you, Mr. Cox.

If other members—Mr. Green, I believe, in particular—have opening statements, I would simply ask you to put them in the record, if you will, so we can proceed, because Chairman Greenspan has to be out by 11 o'clock.

Mr. GREEN. Gladly, Mr. Chairman. I will put it in the record.

Thank you for being here, Mr. Greenspan.

Mr. GREENSPAN. Thank you very much, sir.

[The prepared statements of Mr. Green and Mr. Horn follow:]

Opening Statement of Representative Gene Green
Government Operations Subcommittee
on Commerce, Consumer, and Monetary Affairs
August 10, 1994

Thank you, Mr. Chairman. I would like to thank you for organizing this hearing and assembling such an esteemed panel.

The goal of today's hearing is to shed light on the problems the Fed faces in dealing with economic uncertainty. Making decisions in an atmosphere of uncertainty is not uncommon, as any businessman will tell you. In fact, some may say that is inevitable. But that task is certainly made more complicated by unreliable data or out-of-date methodologies. Our task today is to find out to what extent problems exist and how to change them.

For the consumers and small businessmen in my

district and for many across my state of Texas, the recent rise in interest rates have not been a benefit. It puts the price of a payment on a home out of reach and the purchase of needed durable goods off until later, perhaps much later.

If the problem the Fed faces is a lack of funding for data-gathering, then I look forward as a member of this committee to working toward providing the necessary solutions. The problem may be, on the other hand, a philosophic disagreement on the level of growth the economy can sustain without inflation. If that is the case, then solutions the Congress may offer will have limited effects.

Statement of Congressman Stephen Horn

House Committee on Government Operations

August 10, 1994

Mr. Chairman, I want to commend you for holding these hearings. Monetary policy is not a topic often discussed by ordinary people, but it exerts extraordinarily strong effects on the economy.

The breakdown of the previously close connection between M2 and inflation has thrown monetary policy into chaos. Milton Friedman's observations about money and inflation are less clear guides than ever before. Never before has the Federal Reserve been so closely watched. Thousands of market analysts hang on Mr. Greenspan's every word like some modern day Nostradamus. So it is very appropriate that we hold these hearings as to policy goals and tools in this new setting.

We need to know whether the Fed has the independence to maintain price stability, adequate data and indicators to know the appropriate direction, and the tools to accomplish this goal.

In a capitalist society, prices are the basic means by which we transmit information about what consumers want and what producers can accomplish. Price stability is a very important goal for a central bank. It is a clear and achievable goal, and is a prerequisite for economic growth. Inflation, or expected inflation, can wreak havoc with investment and growth plans, as price signals are obscured in the static of inflation.

With that, I look forward to hearing about how the Federal Reserve is operating in this new milieu.

Mr. SPRATT. Mr. Chairman, we have your prepared testimony which was previously submitted. We will make it part of the record, without objection, so that if you wish to summarize any part of it you may do so.

Thank you again for coming, and the floor is yours.

STATEMENT OF ALAN GREENSPAN, CHAIRMAN, FEDERAL RESERVE BOARD

Mr. GREENSPAN. Thank you very much, Mr. Chairman, and I thank the committee for the opportunity to reflect on some of the broader aspects of monetary policymaking, which I rarely have occasion to do before a congressional committee. As requested, I intend to examine the role of forecasting and the use of economic statistics in the making of monetary policy.

There has never been a time when economic understanding was all encompassing, activity was measured with unerring precision, and forecasting was flawless. The critical question facing the current generation of policymakers—and that appears to have motivated this hearing—is: Has the pace of technology, which has substantially integrated world economies and brought many new products to market, significantly impaired our understanding of how the economic system works, how available data relate to the true economy, and how policy should be implemented?

Economists have always struggled to understand the effects of innovations in behavior, instruments, and institutions. Many analysts, despairing of reaching a usable understanding, have endeavored to substitute a so-called rule for a monetary policy to eliminate a need to analyze or to forecast economic developments.

What has become increasingly clear is that no simple guide would enable us to put monetary policy on automatic pilot. In principle, such a rule might be relied upon more readily if there were only one ultimate policy objective, as would be the case if price stability were mandated. However, in this country the Federal Reserve Act specifies multiple objectives for monetary policy.

Some analysts, even in the case of these multiple objectives, have advocated that the use of a single variable as an intermediate target would eliminate the need to forecast and enable monetary policymakers to follow automatically only one policy guide in their effort to stabilize the economy. But implicit in the use of any such potential target is the presumption that the past relationship of the variable to the economy would continue to hold, and that itself, of course, is a forecast.

The forecasting records of some of those proposed variables, including the financial aggregates M1 and M2 and domestic nonfinancial debt, strongly suggest that following a rule involving just one target would be inadequate to steer the U.S. economy. Even more complex rules, involving multiple policy guides or automatic feedback from economic outcomes, would be insufficiently responsive to changing economic structures.

For monetary policy purposes, there appears to be no recourse but to form a conceptual framework that identifies the various important forces influencing the future course of the economy and, hence, can be used in forecasting.

In that process, money and credit aggregates play a substantial role and have proved over the years to be useful in framing the relevant conceptual understanding of the way that the American economy functions.

In their efforts to understand the economy, analysts have tried to take advantage of new technology, including the manifold increase in computing power. Econometricians have devised complicated mathematical models that purport to describe relationships within the American economy. While these models serve many useful purposes, no matter how elaborate they may be, they are generally too simple to capture the evolving complexities of our economy.

History teaches us that the underlying structure of the economy is in a continuing state of flux; current estimates of key parameters describing the basic relationships are based on past experience and need to be viewed skeptically when making policy for the future. As a consequence, alternative approaches to inferring the evolving structure of the economy are required.

The appropriateness of monetary policy will depend on how successful we are in understanding the complex forces that are currently driving the economy. In the process of reaching such an understanding, we do not rely on a single point forecast of economic activity.

Instead, recognizing the uncertainty around any given forecast, we endeavor to look at a range of forecasts and to form judgments of their relative probabilities. Based on those judgments, we implement policy to meet national economic objectives, but we also recognize the inevitability of errors in forecasts. Policymaking requires an assessment of the consequences of various policy alternatives should they prove to be wrong. We must ask ourselves: How difficult would it be to reverse policy mistakes and at what cost?

When forming an assessment of the economy's structure, we have to recognize that the economic outcomes of human decisionmaking—spending, production, asset holdings, and prices—are measured imperfectly, adding noise and, in some instances, systematic biases to reported statistics.

From the viewpoint of an analyst, such as myself, who has spent much of his career closely tracking the regular cycle of economic releases, the list of shortcomings in U.S. economic data is depressingly long. There are biases in aggregate price indexes, incomplete reporting of international transactions, a significant amount of near interpolation in the service portion of our national income accounts, uneven coverage of the financial accounts of households and firms, and unreported economic activity.

Breakthroughs in computing hardware, software, and communication technologies may allow data collection to be more precise, but these and other innovations make the economy more difficult to measure. This results, in large part, because output of goods and services is increasingly becoming more conceptual than physical over time. The part of the real value of output which reflects ideas rather than bulk has increased immeasurably this century. As a consequence, the units of output have become ever more difficult to identify. One ton of 99.7 percent pure aluminum is fairly well defined with respect to quantity and quality. A computer program is

not. Clearly, unless output is unambiguously defined, the concept of price is correspondingly vague. Moreover, the conceptualization of output is one of the factors that has been associated with substantial increases in the quality of goods and services. Measurement of the extent of that improvement, quite obviously, is problematic and in turn has critical implications for aggregate price indexes. Any imprecision in these calculations of prices translates directly into uncertainty in the real value of output and productivity.

There are many hopeful signs that improvements in technology and advances in the practice of measurement are being reflected in improved economic statistics. For example, the development of the employment cost index by the Bureau of Labor Statistics has added importantly to our understanding of trends in labor costs. The BLS has also been able to raise significantly the response rate for the first estimate of monthly employment in its establishment survey, thereby improving noticeably the quality of that timely indicator of economic activity.

Similarly, the development of hedonic estimates of price changes for computing equipment by the Bureau of Economic Analysis has paid off in a better understanding of trends in real investment spending and inflation. Nonetheless, as I shall discuss later, more work needs to be done.

Recognizing that economic understanding is imperfect and measurement is imprecise is not a reason to despair about conducting monetary policy. Imprecision in published data on the macroeconomy does not pose a crippling hardship. When there is systematic bias in reported statistics, we can take that into account as well. For example, most price indexes tend to overstate inflation. They generally lag behind in recognizing shifts toward lower cost retailers; they are also slow to incorporate new goods and, thus, miss the typical price declines that are posted in the earliest phase of the product cycle.

We are careful to recognize that information on the state of the economy comes from a variety of sources of varying degrees of accuracy. Some data provide full coverage and are quite accurate, such as motor vehicle assemblies and sales. Other data, such as estimates of U.S. currency held abroad, are subject to considerable error. Often before statistics from systematic samples on sales, employment, and prices are available, less accurate so-called anecdotal information can be quite useful as a preliminary indicator of emerging trends. One important source of such information is the reports that are received from our Reserve banks through their extensive contacts in their communities. In addition, we frequently tap trade groups and advisory councils for timely indications of what is going on out in the field. Such detailed readings of firm behavior are important, for example, in indicating when inflation pressures are beginning to mount.

The historical record shows that higher price inflation tends to surface only as the business cycle matures. Thus, by the time that aggregate price indexes reveal that inflation is on the upswing, many imbalances that are costly to rectify have developed already. Hence, information on firm behavior and signals from financial and commodity markets may warn about the development or easing of bottlenecks sooner than highly aggregative readings on unemploy-

ment, national income, prices, or the traditional monetary aggregates.

On balance, imprecision in the measurement of key economic magnitudes does complicate the job of policymaking. Making inferences about the future is always harder when readings on the economy are contaminated by measurement error. However, because of our ability to consult a variety of sources, the adverse effects of such mismeasurement are kept to a minimum. I am not aware that forecasting the American economy is currently any more difficult or for that matter, any easier than it was, say, several decades ago.

When considering steps to improve the measurement and interpretation of economic statistics, we must recognize that there are budget constraints. The staff at the various agencies responsible for gathering and interpreting economic statistics are working hard and are making progress within those constraints. I can think of no better area for additional research than in the construction of price indexes, in part because of the widespread extent of indexation in the Federal Government's accounts.

Given the considerable body of research indicating that systematic biases may exist in measurement of price changes in the consumer price index, it will be an important task of staff at the Bureau of Labor Statistics to address this problem in coming years.

Another step to enhance data interpretation is to process information from futures, forward, and options markets intensively. Derivatives markets potentially provide central banks with new opportunities to gauge market sentiment as to the future movement of a variety of interest rates, equity prices, foreign exchange rates, and commodity prices, and to measure the strength of those market convictions. Moreover, financial innovation holds the promise of opening new windows on economic behavior, particularly should markets develop in price-indexed debt or in futures on such items as home prices, gross domestic product, and the components of spending.

As to futures markets, we must await the ingenuity of private parties in the financial sector. As to indexed debt, the Treasury could issue obligations that have interest and principal payments related to consumer prices.

Having reflected on forecasting and economic statistics and in the conduct of monetary policy, I remain confident in just one prediction, Mr. Chairman. Future Fed Chairmen will tell your successors on this panel that economic forecasting is still uncertain and that the consequences of monetary policy vary over time. The American economy is complex and evolving. Keeping pace with that change will require our continuing efforts to understand how the economy works and to adapt our data gathering procedures accordingly.

Thank you very much.

[The prepared statement of Mr. Greenspan follows:]

For release on delivery
10:00 A.M., E.D.T.
August 10, 1994

Statement by

Alan Greenspan

Chairman, Board of Governors of the Federal Reserve System

Before the

Commerce, Consumer, and Monetary Affairs Subcommittee

of the

Committee on Government Operations

U.S. House of Representatives

August 10, 1994

I thank the committee for this opportunity to reflect on some broader aspects of monetary policy making. As requested, I intend to examine the role of forecasting and the use of economic statistics in making monetary policy.

There has never been a time when economic understanding was all encompassing, activity was measured with unerring precision, and forecasting was flawless. The critical question facing the current generation of policy makers--and that appears to have motivated this hearing--is: Has the pace of technology, which has substantially integrated world economies and brought many new products to market, significantly impaired our understanding of how the economic system works, how available data relate to the true economy, and how policy should be implemented?

Forecasting and Policy Making

Economists have always struggled to understand the effects of innovations in behavior, instruments, and institutions. Many analysts, despairing of reaching a usable understanding, have endeavored to substitute a "rule" for monetary policy to eliminate a need to analyze or to forecast economic developments. What has become increasingly clear is that no simple guide would enable us to put monetary policy on automatic pilot. In principle, such a rule might be relied upon more readily if there were only one ultimate policy objective, as would be the case if

price stability were mandated. However, in this country, the Federal Reserve Act specifies multiple objectives for monetary policy. Some analysts, even in the case of these multiple objectives, have advocated that the use of a single variable as an intermediate target would eliminate the need to forecast and enable monetary policy makers to follow automatically only one policy guide in their effort to stabilize the economy. But implicit in the use of any such potential target is the presumption that the past relationship of the variable to the economy would continue to hold, and that, itself, is a forecast.

The forecasting records of some of those proposed variables--including the financial aggregates M1, M2, and domestic nonfinancial debt--strongly suggest that following a rule involving just one target would be inadequate to steer the U.S. economy. Even more complex rules, involving multiple policy guides or automatic feedback from economic outcomes, would be insufficiently responsive to changing economic structures. For monetary policy purposes, there appears to be no recourse but to form a conceptual framework that identifies the various important forces influencing the future course of the economy and, hence, can be used in forecasting. In that process, money and credit aggregates play a substantial role and have proved over the years to be useful in framing the relevant conceptual understanding of the way that the American economy functions.

In their efforts to understand the economy, analysts have tried to take advantage of new technology, including the manifold increase in computing power. Econometricians have devised complicated mathematical models that purport to describe relationships within the American economy. While these models serve many useful purposes, no matter how elaborate they may be, they are generally too simple to capture the evolving complexities of our economy. History teaches us that the underlying structure of the economy is in a continuing state of flux; current estimates of key parameters describing the basic relationships are based on past experience and need to be viewed skeptically when making policy for the future. As a consequence, alternative approaches to inferring the evolving structure of the economy are required.

The appropriateness of monetary policy will depend on how successful we are in understanding the complex forces that are currently driving the economy. In the process of reaching such an understanding, we do not rely on a single, point forecast of economic activity. Instead, recognizing the uncertainty around any given forecast, we endeavor to look at a range of forecasts and to form judgments of their relative probabilities. Based on those judgments, we implement policy to meet national economic objectives. But we also recognize the inevitability of errors in forecasts. Policy making requires an assessment of the consequences of

various policy alternatives should they prove to be wrong. We must ask ourselves: How difficult would it be to reverse policy mistakes and at what cost?

Measurement and Policy Making

When forming an assessment of the economy's structure, we have to recognize that the economic outcomes of human decision making--spending, production, asset holdings, and prices--are measured imperfectly, adding noise and, in some instances, systematic biases to reported statistics. From the viewpoint of an analyst, such as myself, who has spent much of his career closely tracking the regular cycle of economic releases, the list of shortcomings in U.S. economic data is depressingly long. There are biases in aggregate price indexes, incomplete reporting of international transactions, a significant amount of mere interpolation in the service portion of our national income accounts, uneven coverage of the financial accounts of households and firms, and unreported economic activity.

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There are many hopeful signs that improvements in technology and advances in the practice of measurement are being reflected in improved economic statistics. For example, the development of the Employment Cost Index by the Bureau of Labor Statistics has added importantly to our understanding of trends in labor costs. The BLS has also been able to raise significantly the response rate for the first estimate of monthly employment in its establishment survey, thereby improving noticeably the quality of that timely indicator of economic activity. Similarly, the development of hedonic estimates of price change for computing equipment by the Bureau of Economic Analysis has

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The Conduct of Policy

Recognizing that economic understanding is imperfect and measurement is imprecise is not a reason to despair about conducting monetary policy. Imprecision in published data on the macroeconomy does not pose a crippling hardship. When there is systematic bias in reported statistics, we can take that into account as well. For example, most price indexes tend to overstate inflation. They generally lag behind in recognizing shifts toward lower-cost retailers; they are also slow to incorporate new goods and, thus, miss the typical price declines that are posted in the earliest phase of the product cycle.

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On balance, imprecision in the measurement of key economic magnitudes does complicate the job of policy making. Making inferences about the future is always harder when readings on the economy are contaminated by measurement error. However, because of our ability to consult a variety of sources, the adverse effects of such mismeasurement are kept to a minimum. I am not aware that forecasting the American economy is currently any more difficult or, for that matter, any easier that it was, say, several decades ago.

Course of Action

When considering steps to improve the measurement and interpretation of economic statistics, we must recognize that there are budget constraints. The staff at the various agencies responsible for gathering and interpreting economic statistics are working hard and are making progress within those constraints. I can think of no better area for additional research than in the construction of price indexes, in part because of the widespread extent of indexation in the federal government's accounts. Given the considerable body of research indicating that systematic biases may exist in measurement of price change in the Consumer Price Index, it will be an important task of staff at the BLS to address this problem in coming years.

Another step to enhance data interpretation is to process information from futures, forward, and options markets intensively. Derivatives markets potentially provide central banks with new opportunities to gauge market sentiment as to the future movements of a variety of interest rates, equity prices, foreign exchange rates, and commodity prices and to measure the strength of those market convictions. Moreover, financial innovation holds the promise of opening new windows on economic behavior, particularly should markets develop in price-indexed debt or in futures on such items as home prices, GDP, and the components of spending. As to futures markets, we must

await the ingenuity of private parties in the financial sector. As to indexed debt, the Treasury could issue obligations that have interest and principal payments related to consumer prices.

Conclusion

Having reflected on forecasting and economic statistics in the conduct of monetary policy, I remain confident in just one prediction: Future Fed chairmen will tell your successors on this panel that economic forecasting is still uncertain and that the consequences of monetary policy vary over time. The U.S. economy is complex and evolving. Keeping pace with that change will require our continuing efforts to understand how the economy works and to adapt our data-gathering procedures accordingly.

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Mr. SPRATT. Thank you very much, Mr. Chairman.

Let me put to you, looking backward, a real world situation that required good financial information that was not readily available, and that is the summer of 1990 with the onset of the Gulf war. As I recall, the NBER now says we were entering recession in July of that summer, but we really didn't perceive it definitely until December at the earliest or perhaps January when it was finally acknowledged.

Had you had better information available at your disposal about the status of the economy then, would you have taken steps differently in expanding the monetary supply, working down the discount rate or bringing up reserves in the banking system, doing whatever you could to increase liquidity in order to have an expansionary as opposed to a contractionary monetary policy?

Mr. GREENSPAN. Mr. Chairman, you may remember that we actually started to ease monetary policy in the spring of 1989 and did so on the grounds that we began to see the economy slowing down. I would doubt very much that were the data that are available for that period available then, that any actions would have changed in what it was we were doing.

You also have to be a little careful about the ex post determination of when peaks and troughs in the economy occur, because what occurs quite often is that you get false peaks and false troughs which in retrospect, of course, never show up in these calculations of where the peaks and troughs actually were, and that is the reason why the determination of when the business cycle is peaking and troughing usually doesn't occur until very significantly after the fact and only in very considerable retrospect.

So I remember that period quite well, and I can't conceive of the fact of where any actions we took would have been significantly altered had the data that we know now about that period been available then.

Mr. SPRATT. One of your problems then was understanding the monetary aggregates and what was happening with M2 in particular, and M2 seems to be still an elusive target, difficult to understand. The growth in M2, as I understand it, hardly gained at all in the last 3 to 4 years.

Mr. GREENSPAN. That is correct, Mr. Chairman. It is quite regrettable because that has been over the years—indeed, over the decades—a really quite extraordinarily stable variable relative to the economy, and it veered off quite significantly in recent years. I am only hopeful that at some point the causes of that, which are structural adjustments, will be completed and we may find that M2 will again be a useful variable, and for that reason I must say we do watch it, obviously; we calculate it; we try to understand it.

We project it as we are required to do under the Humphrey-Hawkins Act, but at the moment it has not reestablished its relationships and has not been terribly useful in predicting the type of economic activity which I think it was successful in doing in the past.

Mr. SPRATT. When something like M2, which has been an important indicator, as you state, ceases to be a reliable indicator, it goes awry, is simply not responding as one would expect to input, and you, in a sense, lose your compass or one of your customary compasses and you turn to other variables that you start watching,

does this cause the Fed to be more cautious, more gradual, more tentative about monetary policy, and does it therefore hamper the effects of your monetary policy decisions, not having these old reliable compasses to use?

Mr. GREENSPAN. It is important to remember that even when we have those old reliable compasses, that does not enable us to stop watching the broad spectrum of economic data. What we tend to do, as a practical matter, is not to depend on any single statistic, because any single statistic can be wrong, it can be measured imperfectly, it can have all sorts of problems associated with it that we have no way of testing.

As a consequence, what we try to do is to create a body of information which gives us a sense of what the underlying forces driving the economy are at any particular point in time. One would be continuously looking at a whole series of relationships, testing whether they are giving you the same story or whether they are giving you something which is off the chart.

I might say, when you see something go off the chart, that may be a signal that there is something wrong with your overall broad understanding, and you look at that type of indicator very closely. But I would not say that we tend to be terribly sensitive in evaluation and policymaking to the type of errors that invariably arise within any specific statistic or any set of data since we are watching a whole spectrum to try, to whatever extent one can do that, to ferret out what the true underlying forces driving the economy are.

Mr. SPRATT. So one of the lessons you have learned and would pass on is that you can't be a monotheist in this business?

Mr. GREENSPAN. Sorry, can't be what?

Mr. SPRATT. You can't—I didn't say "monetarist"—monotheist.

Mr. GREENSPAN. No. That is what I thought you said. That is very clever. Not with the statute that we have. In other words, we are required by law to have a whole set of numerous different offsets as to the way we develop monetary policy, and as a consequence of that we have structured the whole analytical system to address that.

Had we been by mandate required to do something very specific, such as maintain stable prices, then the approach would be different; it would be much closer to rules or indicators or monotheism, if I may put it that way.

Mr. SPRATT. You bring this up, and I was going to pursue this line with you. There are various acts on the books that do have mandates not all of which are consistent with each other. You are mandated to pursue effectively the goals of maximum employment, stable prices, moderate long-term interest rates. Obviously interest rates in today's world have an effect on exchange rate stability. In addition, the Fed seems to have taken as its primary concentration since the late 1970's inflation control.

Would you agree that this is what you have focused upon and which you regard as your primary overriding responsibility?

Mr. GREENSPAN. Yes, I would, Mr. Chairman, and I do so not because we think we are looking at just a single set of statistics, but it has become very evident to us at least, and to, I must say, a fairly significant part of the economics profession both here and

abroad, that maximum sustainable long-term employment growth is not inconsistent with low inflation.

Indeed, one could readily argue that low inflation may be a necessary condition for that phenomenon of long-term maximum employment to exist, and obviously to the extent that you have low inflation or closer to stable prices, over time the inflation premiums associated with that would embody themselves in long-term interest rates; that is, you would have lower inflation premiums, and hence you would have moderate or lower long-term interest rates. Thus, we do not perceive that the statutory requirements that are stipulated in the Humphrey-Hawkins Act are mutually exclusive or require significant tradeoffs.

They do in the short run, and there are problems in that regard, but our view over the long run is that if we keep the level of inflation to de minimis dimensions, that we will get over the long run the highest rate of potential growth that policy by itself can implement, recognizing that there is far more to economic growth and employment than monetary, or I might say, even fiscal policy.

Mr. SPRATT. You referred to looking at numerous forecasts, economic data sources, not just one but having a manifold access to all of these indicators, and we have got testimony today that quite a few still have some inherent problems of timeliness and accuracy. One of our witnesses will testify in particular that preliminary data, which is especially important to you, is a lot less reliable than the final data in a lot of government reporting statistics.

We have testimony that the labor market data, particularly right now, is still very problematical—layoffs, wage rate increases in the short term, preliminary information, how to seasonally adjust the unemployment statistics.

We have lots of information, not just in this hearing but from other sources, about the faults inherent in our international trade statistics. We were told yesterday in a CRS briefing that we use the Canadian trade stats in order to pick up more accurately exactly what our exports to Canada are because they have a better compilation of that than we do.

Mr. GREENSPAN. That is correct.

Mr. SPRATT. Could you catalogue these things that you look at and tell us which are reliable, which aren't, and what we can do to improve—I don't expect a total comprehensive Sears catalogue but just a reasonable overview of what is out there, what is generated within the government, and tell us which are particularly unreliable, what we can do to improve them, and whether or not it might be useful to have a central government agency that was specialized and skilled in doing this that was responsible totally for the data gathering and statistical reporting.

Mr. GREENSPAN. Mr. Chairman, the data that we produce are quite mixed, as indeed trying to capture a complex economy such as the United States invariably implies. There are some people who argue that the quality of our data has deteriorated in the last decade or so. I am not sure that is the case. It is certainly the case that the nature of our economy has gotten quite significantly more complex to measure.

The concept of output is becoming increasingly vague, and if you can't define what the unit of output is, you don't know what the

concept of price means, and hence what we have is a very interesting set of processes which tries to define what the economy is, how you measure it, what is its size.

At the turn of the century, if we go back let's say 50 years ago or so, manufacturing dominated the system. The data that we had developed for the census of manufactures over the decades was incredibly detailed. We had details on the types of things that we turned out of our factories which got down to levels which were extraordinarily small. I mean the detail was extraordinarily elaborate.

As we moved away from manufacturing toward a greater conceptualization, more ideas engendering the basis of output, we are having increasingly more difficulty understanding what we mean by what is the real gross domestic product.

Those of us who are involved in policy have got to understand and evaluate on a continuous basis where those data come from, how they are estimated, how accurate are they, and what do they tell us about what is really going on.

The gross domestic product, for example, is what we term a secondary source of data. In other words, it is built up from other primary sets of information, and all of the errors that are in the primary system, obviously, are in the total system. And since there are an awful lot of areas where we have very little information and just gross estimations are required, we are dealing with vague numbers.

Nonetheless, our data systems are good enough over time and on a timely basis to give us a sense of what is going on, which in conjunction with the anecdotal evidence, which is nothing more than a less systematic way of deriving data, gives us a judgment of what is going on in the dynamics of our economy so that we have a reasonably good sense of where monetary policy interfaces with it.

We do not need exactly accurate data. What we do need is a sufficiently detailed understanding of the forces and the processes that are moving our economy so that policy can address that.

I don't deny that we would be delighted to have a significant improvement in the quality of the data that we have access to. I will tell you, Mr. Chairman, I would doubt very much whether the quality of economic policy, whether it be fiscal policy or monetary policy, would change demonstrably for the better.

I think it does at the margin unquestionably have an effect, but I don't want to suggest that either a major improvement is going to make a major change in policy or that the admittedly deficient quality of a number of our statistics creates real difficulties for us at the Federal Reserve.

Mr. SPRATT. Let me give you just one on which lots of consequences turn. The consumer price index and related price indices. Lots of COLAs depend on it. Lots of decisions in the government depend upon it.

Do you think it is an adequate index of inflation in our economy?

Mr. GREENSPAN. As I said in my prepared remarks, Mr. Chairman, it is the consensus of the economics fraternity that an index such as the consumer price index, which is a fixed-weight index calculated in a certain way, tends to overestimate the true change

in the cost of living. The Bureau of Labor Statistics is aware of that fact. It is built into the way we develop price indexes.

As I say in my prepared remarks, I think that we could, by the application of more effort in improving that index, make an important improvement in a key statistic, which is not all that crucially relevant to monetary policy, because we can make rough judgments as to what the biases are for our purposes.

But, as you well know, it has a very important impact in indexing of wage contracts and very specifically in the indexing of a very substantial part of the Federal budget.

Mr. SPRATT. I have some more questions, but I need to share the time with my colleagues, so let me turn to Mr. Cox.

Mr. COX. Thank you, Mr. Chairman. I have enjoyed the exchange thus far.

Let me continue along this very same line concerning price levels and how we measure them. I know that from the testimony you have just given the Fed is concerned about maintaining consistency in price levels. I am not sure that I know much beyond that.

I know that you consider it to be a main part of your mission. I don't know if you consider it to be the central part of your mission. So let me put it directly.

Do you have a plan for what the dollar will be worth 10 years from now, what you want it to be worth 10 years from now?

Mr. GREENSPAN. No, we do not very specifically, and one of the reasons is that it is a much broader concept that relates to economic policy over the long run. As I have testified before previous committees, it is very crucial that we recognize, since the dollar is the principal reserve currency in the world and is employed by a very substantial part of the world as a source of liquidity, that the dollar must be a strong and viable currency so that rates of return on dollar-denominated assets are considered sufficiently attractive to induce individuals to hold dollar-denominated assets.

Mr. COX. Do you think that if the dollar were constantly priced, and that if the expectation in America and around the world were that this dollar would be constantly priced, that that would improve the rate of return on dollar-denominated investments?

Mr. GREENSPAN. You mean if we had fixed exchange rates basically?

Mr. COX. Well, no. Let me phrase it differently, because a system of fixed exchange rates is one of the means of working toward that objective, but it is not the exclusive one.

If we knew that the dollar would be worth in 10 years what it is worth today, would that not enhance the attractiveness of a dollar-denominated investment?

Mr. GREENSPAN. Oh, I should certainly think so. The implication of that, as you have put it, Mr. Cox, is that the price level is stable.

Mr. COX. Yes.

Mr. GREENSPAN. There is no question that if there is a general presumption in the marketplace that inflation is not a factor in economic decisionmaking, the cost of capital falls, real interest rates fall, the predictability of economic events in the future, obviously, is enhanced, and the degree of uncertainty which prohibits the forward progressing of economic activity is reduced.

Mr. COX. Why, then, would the Fed not have a plan for price stability that would seek to obtain the objective that 10 years from now the dollar would have the same purchasing power it has today?

Mr. GREENSPAN. Because, Mr. Cox, I thought you were referring to the exchange rate when you were referring to that, and that is a much more complex issue.

If you are asking me about the general domestic price level, I would say that would be the ideal goal, unquestionably.

Mr. COX. And is that the Fed's goal?

Mr. GREENSPAN. I would say that to the extent that we believe, as we do, that inflation at a negligible level will enhance economic activity, that enables us to act in conjunction with what the statutes governing monetary policy directing us are. We do not have a statute such as that which Steve Neal introduced in the Banking Committee for stable prices. I testified, as you may recall, in favor of that.

That would effectively mandate a single goal of the central bank, and under those conditions legislation would say we have to do that. But we don't have that in legislation. We have to adhere in a democratic society to the statutes that are given to the central bank by the Congress.

Mr. COX. But certainly it is within the statutory authority under which you already operate to consider that of the two chief goals of macroeconomics, economic growth and price stability, you would defer on matters of economic growth, output and so on, to a fiscal policy conducted by the political branches—and that the Fed's job would be to ensure price stability. Particularly given the tools that are at your disposal, which is really what this hearing is about today, isn't maintaining stable prices the task to which the Fed is truly suited?

Mr. GREENSPAN. Mr. Cox, that is precisely our goal. Essentially it is the purpose of every central bank to ensure the stability of the currency, and we think that is a crucial and primary—in fact, the primary goal of the Federal Reserve. We think that price stability is a necessary ingredient for stable, long-term economic development.

Mr. COX. Having said that, let me again follow up on the chairman's questions, and try to adhere to what is the assigned topic for today. When the Fed uses a variety of macroeconomic statistics to determine what is going on in the economy, it is per force examining history, what has already happened.

There is a great deal of concern with the Fed's interest rate changes, inasmuch as they rely upon historical data. As you know, I have had some exchanges with Senator Sarbanes about this. Some people say, "Well, the inflation picture is rosy, looking backward." But you say, "No, looking forward is more important."

When we use historical data, we are looking backward. And therefore you have got to find other ways to anticipate. Isn't it the case that the price of money—particularly considering that money is in one sense like any other commodity and its price will fluctuate based upon its quantity relative to demand—is a better forward-looking indicator than the historical data that we have? Isn't this

particularly true in light of some of the testimony we will get later on today that historical data are often unreliable and inaccurate?

Mr. GREENSPAN. There is no question that there are elements within commodity prices, within the general price structure, within a lot of economic statistics which give us a sense of where the economy is going. New orders, for example, or level of inventories, various different elements which suggest the degree of momentum in the economy, not the historical measures, but sort of the real time current indications, are very useful to getting a sense of where it is that we are going.

The crucial thing we have to be aware of, however, is that by the time we see that final goods prices are beginning to accelerate, that is a reflection of policies which were put in place a year earlier, and that one of the difficulties that confronts monetary policy, as I have outlined in some length at the various different testimonies I have been giving in the last year or so, is that we have no alternative but to be forward looking and to recognize that the policies that we are making today are really relevant to 1995 far more than they are relevant to 1994.

And that means we have to have a sense of next year, not in a very detailed sense but in a sufficiently adequate sense to know what the thrust of our policies will be doing to the configuration of economic output, inflation, interest rates, and a variety of other related items through time.

And anything that we can unearth that assists us in getting a leg up on understanding the process that is going forward we find very useful.

Mr. COX. In that connection, then, what can people expect to be the value of the dollar in terms of a market basket of commodities? Will the public be able to rely on the fact that the Fed is looking at that same market basket, and that the Fed's goal is to ensure price stability measured in that way?

Mr. GREENSPAN. Yes. I have said many times in prior testimony that our view is that as we move toward price stability, which is the goal of the Federal Reserve, we set in motion forces which enhance all other aspects of the economy, and we don't view the issue of inflation and unemployment as a long-term tradeoff as some used to do, and as a consequence——

Mr. COX. I want to once again remark upon the crowning of what had already been an historical achievement when you remarked before our Joint Economics Committee that the Phillips curve is dead. I am happy that we are hearing today it is still dead.

Mr. GREENSPAN. I am saying that the long-term Phillips curve is dead, which is the crucial one.

Mr. COX. Yes.

Mr. GREENSPAN. There is still from what the data do indicate a short-term tradeoff, which may be sometimes difficult to infer, but you can see it there. But it is crucially important to recognize that that is an ephemeral relationship and that all of the evidence that we have suggests that, through time, to whatever extent there is such a relationship in the very short term, it very quickly dissipates, and monetary policy which fails to focus on the long-term requirement of achieving price stability is inevitably going to find itself in a position where inflation emerges and instability follows

in its path, and a significant negative impact on long-term employment is the outcome.

Mr. COX. Let me ask you about the relative imperfection or effectiveness of the various tools at the Fed's disposal. I confess it is my view that interest rates are an imperfect tool for conducting, as well as an imperfect indicator for measuring monetary policy. But I know that earlier this year and soon again this year you will be using interest rates as a tool in achieving your goals of price stability and fighting inflation.

Isn't it the case that the Fed has plenary control over the monetary base, whereas interest rates are without your control to a substantial extent? And aren't interest rates an imperfect measurement of the demand for money because there are inflation premiums and other factors built into interest rates? And wouldn't we be better to focus on those things that the Fed literally controls—currency and reserves, comprising the monetary base instead of trying to use interest rates as the chief tool for fighting inflation?

And finally, if we were willing to focus in that fashion on the monetary base, shouldn't we be concerned about the growth of the monetary base beyond the growth in M1?

Mr. GREENSPAN. Mr. Cox, while it is true that we use interest rates as the operational variable, or more specifically, the Federal funds rate in our actions, that does not mean that we are not focusing on what the effect is on the other variables which are related to that.

Thus, if we see a significant acceleration or deceleration in monetary aggregates, the monetary base or a number of other indicators at various different interest rate levels, that is an indication that the particular thermostat setting is wrong.

I wouldn't argue at that point that it is interest rates that are what our focus is. What our focus is, is a process. We happen to use the interest rate as the vehicle to express our view as to the level of ease or accommodation or the general stance of monetary policy. But it doesn't mean that it is interest rates which are essentially the overwhelming focus.

When you get to the issue of the monetary base it is true, of course, that we pretty much can control the monetary base because it is a reflection of our balance sheet, and what we do have control over is the Federal Reserve's balance sheet.

One of the problems with the monetary base most recently, as I am sure you are aware, is that a very large part of the expansion in the recent past has been in currency, and even though we do not have exact, detailed data, it is very apparent that the majority of the growth in currency is reflected in shipments of American currency abroad and is not a domestic issue.

Moreover, while there is no question that the reserve balances which are part of the monetary base are a very crucial reflection, and, in fact, an immediate, direct reflection of our actions, we have difficulty correlating movements in the monetary base to economic and financial variables with which we are closely functioning. And so it is important to say if we are going to use the monetary base to stimulate monetary policy, which a number of people have argued over the years, the question really is what do we do about the monetary base? In other words, do we keep it constant? Do we ef-

fectively change it as a fixed percent over time, which we do have the capability of doing.

The question we have to ask ourselves is what is the consequence to the financial system and the economy as we do that? We are having the same problem with the monetary base today that we have been having with M2. The same difficulties in that we are trying to understand why a number of the financial variables over which the Federal Reserve has close or complete control have veered off their relationships from the economy.

Until we are confident we understand that process, I would be very uncomfortable setting a fixed policy related strictly to the monetary base because I am not sure what purpose it would serve.

Mr. COX. I thank you very much, and I yield to the remaining members of the panel.

Mr. SPRATT. Thank you, Mr. Cox.

Mr. Horn.

Mr. HORN. Thank you very much, Mr. Chairman.

Chairman Greenspan, one of the key factors, of course, the Fed has dealt with since the beginning is how to assess the degree of inflation and what the trend might be, and to try to take appropriate actions. Some other nations have gone to using inflation indexed bonds as a way to differentiate what might be the actual rise in inflation and separate it from the expectations that might relate to a lot of other factors, including psychological factors.

Would an inflation indexed bond be a useful tool for Congress to authorize for the Federal Reserve?

Mr. GREENSPAN. I don't think that Congress need authorize it because the statutory authority at this stage does exist within the Treasury Department to do that. And they have been reviewing that issue because there are numbers of pluses and minuses with respect to doing that. The pluses are the ones you indicate and I have indicated in testimony previously that we believe that it would be most helpful so far as understanding the degree of inflation expectations embodied in long-term bonds, which an indexed bond would very readily unearth, and that would tell us a great deal about a very important element within our economy.

The question that the Treasury has to contemplate is whether such bonds would be in adequate demand so that the bid-ask spread would be sufficiently narrow as not to be creating additional costs to the Treasury and the American taxpayer in the process.

It is our view that such bonds would be readily acceptable in the marketplace, and indeed for pension funds and other insurance-type products quite probably a valuable type of instrument to have out there. But it is the judgment of the Treasury which is crucial here.

We don't need a statute or legislation. They are sympathetic to our concerns about this. They are examining that, and we will await their decision on that.

Mr. HORN. One of the key areas of interest, obviously, of people watching the Fed is the increasing purchases of T-bills. Now, you have been increasing them and thus loosening monetary policy. And certainly the other factor is the discount rates.

Now, the Fed has been increasing the Federal funds and the discount rate, thus tightening monetary policy. Are these mixed sig-

nals? And is this sort of the amorphousness of our economy that causes this, or what?

Mr. GREENSPAN. Actually I think that if you take a look since we started to move interest rates up on February 4, my recollection is that there has been a fairly consistent and pronounced decline in bank reserves as a consequence.

I would say that the purchase of Treasury bills does mean the building up of our balance sheet. But it is probably more a reflection of the need to supply currency abroad than anything else. It has got very little to do with domestic monetary policy, and I would scarcely describe our policy since the beginning of the year as being one of ease.

Mr. HORN. I was particularly interested in your reference to unreported economic activity. Coming from California with a large illegal alien population, plus the actions of Congress over the last 10 or 15 years to put a lot of people off the tax rolls, it seems to me we do have a very difficult time saying what is the extent of that underground economy. We know it is billions of dollars. We know billions of dollars are lost in taxes to the government because we don't have a decent reporting system or filing system.

What are your thoughts as to how we can get a better fix and what agencies of the government could do it? Or do we need some new types of surveys? We know when we do a census that minority communities are typically underreported, so we have a number of great problems there.

Mr. GREENSPAN. Mr. Horn, this has been a problem which has existed since the beginning of the development of national income accounts, and indeed exists to a greater or lesser extent in virtually every developed country which is trying to put the data together.

We see it most apparently when you try to match the Federal income tax statistics of income data with what we know is going on in the total economy. We, for example, find something quite interesting; namely, that the W-2 reports on wages and salaries which appear in the income tax statistics for individuals is a fairly comprehensive measure of total wages and salaries in our economy. That is, there is very little underreporting of wages and salaries so far as the income tax system is concerned.

When you begin to look at a whole series of other elements in the personal income accounts, the differences are really quite stark, and the reporting on other types of income—interest and dividends, for example—proprietors' income is clearly the one which gets into the area to which you refer. And I think there is a continuous endeavor working from the employment data on the one hand, periodic surveys on the other, data from small business and analogies to subchapter S corporations, for example, with respect to looking at noncorporate income. We try to fill in the holes.

And because of the fact that you know conceptually in principle that the gross domestic product, which is an adding up of outlays, must be equal to the gross domestic income, you have a process by which you try to keep measuring both sides. And it is only in that context that we have an increasing sense of what the size of the underreported incomes or underreported activities are.

It is an art form, if I may put it that way, among statistical data gatherers to make judgments of what the underreported incomes

are and how to evaluate them. And it is very difficult to make judgments as to in California precisely what the degree is, but the way they work is try to make guesses as best they can do as to what income is going through the tax system, what income is going through the employment insurance system, and try to make estimates of where coverage is inadequate.

Mr. HORN. When you make those estimates are there any particular indices that might be developed that strike the members of the Fed as obvious and yet executive agencies have not developed them and maybe Congress hasn't funded them?

Mr. GREENSPAN. There may be some great insights within the staff of the Federal Reserve on this issue, but it hasn't percolated up to me.

Mr. HORN. Are you telling me the staff is shy within the Federal Reserve?

Mr. GREENSPAN. I have never noticed, Mr. Horn.

Mr. HORN. One question—it was brought up by Mr. Cox; I just want to pursue it a minute. It is the obvious one of once a decision is made by the Fed in a particular time period, to what degree has the Fed and its research staff, as perhaps doctoral dissertations in the universities around the country, gone back and analyzed a particular factor that the Board might have relied upon to make a certain decision, and really seen 10 years later that wasn't the one we should have used?

I mean is there any retrospective second-guessing just to hone your prognostication abilities?

Mr. GREENSPAN. We do that all the time, Mr. Horn, and we are continuously looking back at past actions, the consequences of past actions, what implications they have with respect to what happened subsequently, and indeed it is only on the basis of doing that that we can make judgments in a prospective sense how we expect various monetary policy implementations to affect the economy.

The only thing we have is history to tell us that, and we are continuously endeavoring to find relationships in past cycles, in past periods comparable to what we are dealing with today, for example, where we can use analogies of relationships which suggest that if we implemented policy X, Y occurred. And it is only from those data that we are able to make judgments as to how we think particular policy initiatives will affect the economy in the future.

Mr. HORN. Well, thank you, Chairman Greenspan.

Mr. Chairman, if I might put in an opening statement, or maybe it is now the closing statement, I would appreciate it.

Mr. SPRATT. We will accept yours as we accepted Mr. Green's.

And let's turn now to Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman.

Thank you, Mr. Greenspan for being here today. I have a couple of questions.

One, in light of the recent Humphrey-Hawkins testimony that you gave, you said that one of the useful indicators of potential inflation was the rapid increase in credit growth. And in recent months we have seen a reacceleration of consumer credit, and yet retail sales have been relatively weak. The increases have been at lower rates.

How do you read this? And is this a problem with the data or the indicator as we are talking about here today?

Mr. GREENSPAN. No, I think that our data on installment credit, for example, is really quite accurate.

We are seeing, of course, the clear evidence that as credit cards and various other related vehicles for payment are increasing and showing up in the installment credit system, in essentially revolving credit as we call it, that the degree of use of credit as an alternate means of payment is increasing. In that respect you would expect to see some improvement in the relationships of credit in the consumer area.

But I do think we have to distinguish the fact that overall total net domestic, nonfinancial credit growth, which includes net changes in debt of households and businesses and State and local governments is really quite modest.

We are seeing a significant pickup in loans to business. In fact, there has been quite substantial pickup in loans to consumers, as well, both in the banks and outside the banks. But we have not seen a very substantial increase overall in the credit system, and in part because it is clear, looking at the balance sheets of individual businesses, that part of the rise in commercial bank loans is offsetting a slowing down in net borrowing in the longer end of the capital markets.

And I think it is important to view the total system as well as the individual parts, and indeed it is precisely that that we look at in some detail to get a sense of the dynamics of the market, the dynamics of how banks are lending or not lending, and what the overall credit trends in the system are.

Mr. GREEN. One other question. And I know just in recent years or so we have seen that full employment is now assumed to be 6 percent instead of, I guess when I was in college economics, 4 percent. And in testimony submitted for the record, Robert Reischauer talked about some of the—he suggests conditions in the labor markets that are particularly important for forecasting, and he talks about the improvements that possibly need to be made in forecasting for unemployment.

And if you could just respond first to the indicators on the unemployment, and also just generally on the figure of the 6 percent? Is that really full employment? Or is it, if we go back to the sixties and seventies, you know, where we assumed 4 percent?

Mr. GREENSPAN. Mr. Green, I don't want to comment on specific numbers, but I will repeat an important issue which I raised in the Humphrey-Hawkins hearings, and I think it is important to be raised at this hearing as well because it is crucial to the way we function.

We look at these aggregative measures of slack in the economy, whether it is slack in the labor market or slack in the product markets and these macro statistics are quite useful in suggesting to us where we should look further to understand the process. And, if we find that we are getting unemployment levels, as we measure in our sample survey, moving down or we are beginning to see that initial claims for unemployment insurance, which is the weekly series, is showing a significant drop in layoffs, it is that type of information that would signal to us that we better look far more closely

at the internal structure of the labor markets, to look for such items as labor shortages, difficulty of hiring, problems with respect to wage levels of new hirees, for example, shortages of different types of skills, and make an evaluation of where those shortages exist, which they always do, and whether it is impacting on the wage level.

In short, it is a signal for us to look for the underlying forces which ultimately create problems for the economy and could be the precursors of inflationary forces.

What we do not do is act on any single variable of that type. It is more as a physician would do. It is an early indication to look in detail at what the medical processes going on are, and that is what we do.

We act in conjunction with evaluations in which we are looking at the underlying process, whether it is the labor or whether it is the product markets. In other words, we don't merely take an indication that the rate of operations in manufacturing is high and therefore there are shortages or there are problems.

It is only a signal to us to begin to look in far greater detail at issues as to whether deliveries are being delayed, which suggest that you are having capacity or bottleneck problems, or where the lead times on the deliveries of new orders are beginning to stretch out, or whether the backlogs are stretching out in a manner which suggests that individual establishments are having trouble dealing with the situation.

That is a true indication that you are running into various different degrees of tightness, and it is only these macro data, these macro indicators, which tell us to start looking. But they do not serve as indications that certain types of objectives are required one way or the other, either through ease or tightness. It is the same issue I have raised earlier. Namely, it is terribly important for us to get a view of the total system and not to allow any individual piece of information to guide our policy because indeed it could be and often is inaccurate.

Mr. GREEN. Thank you, Mr. Greenspan. I like your analogy to a physician trying to treat a patient. And I know oftentimes very few physicians have 535 board of directors making suggestions to them.

Thank you, Mr. Chairman.

Mr. SPRATT. Thank you, Mr. Green.

Mr. Shays.

Mr. SHAYS. Thank you, Mr. Chairman.

Mr. Greenspan, it is very nice to have you here. I find I have to pay even more attention because in a way I feel like we speak in tongues. You are probably aware that whatever you say, different people make conclusions, and you affect the economy and so on.

But I have been listening to some of the responses and I am not quite sure I am getting answers, and it would be nice to just get a clearer sense of how you view this.

One of the issues that is being reported is that there is a lively debate inside and outside the Fed on what it should focus on, indicators of real economic growth like employment and investment, or should you be monitoring various measures of the money supply and commodity prices, exchange rate and price cycle and so on.

That debate is occurring. On which side do you come down in that debate?

Mr. GREENSPAN. Well, I think I sort of implied all of the above, which I guess is not exactly responsive to the question that you are raising.

Mr. SHAYS. Right. Can I tell you the only answer I have ever liked that you have given where I really knew where you stood is when someone said, "Mr. Chairman, are you concerned that Congress is going to cut spending too much?" And you said, "I don't go to sleep at night worrying that Congress will cut too much." I could understand what you were saying there.

But back to my question.

Mr. GREENSPAN. We have found that, granted the multiple objectives that are in the statutes which drive monetary policy, that we are required to look at virtually everything to make certain that we are evaluating how the system overall is working. At any particular point in time we have an operational model of how we believe the underlying forces are driving the economy, and which are the more critical ones at any particular point in time. And they change from period to period.

There are times when inflation expectations are not a crucial variable in the system. Indeed, if you go back to the 1950's and the 1960's it really was not a major issue as it is in the last decade or so. And we continuously try to update our view of the forces driving the economy and try to make judgments as to which are the critical statistics.

I have, as you have indicated, been vague on being terribly specific on this issue, and I work at it.

Mr. SHAYS. Sir, you are worse than the State Department. But do you put more weight toward the real economic activity indicators like unemployment or investment or do you come down more on the other measures?

Mr. GREENSPAN. What other measures are you referring to?

Mr. SHAYS. Like money supply, commodity prices.

Mr. GREENSPAN. Well, as a central bank it is obvious that our crucial mandate is to maintain a stable financial system and to maintain the stable value of the currency. So, in that regard that clearly is our central focus.

But as I said to an earlier question, I don't believe that basically is at variance with the desire or need to maintain economic growth or sustaining long-term employment in our society.

Mr. SHAYS. My colleague Mr. Horn asked the question about the Fed purchasing T-bills and kind of pumping up bank reserves, and the Fed increasing the discount rates and tightening monetary policy, and he talked about mixed signals. Well, I also view it as a conflicting policy.

Mr. GREENSPAN. As a what?

Mr. SHAYS. As conflicting policies. Maybe you could just give me a sense of why they wouldn't be conflicting policies? One seems to me to be adding to inflation and one seems to me to be trying to keep it down.

Mr. GREENSPAN. No. I don't see that we are adding to inflation at all.

Mr. SHAYS. Let me just be clear on the question, though. I mean, one, you are tightening, you are purchasing T-bills. You are putting more reserves into banks. You are also tightening——

Mr. GREENSPAN. We are not putting more reserves into banks.

Mr. SHAYS. Oh, you are not. What are you doing then?

Mr. GREENSPAN. To the extent that our Treasury balances, holdings of Treasury securities, are rising, they are largely to finance the currency expansion, a substantial part of which is going abroad.

Mr. SHAYS. So your sense is that it basically is pushed out overseas and not having an impact here?

Mr. GREENSPAN. Indeed, that is our judgment. In fact, as I indicated before, bank reserves which directly affect the holdings of commercial banks in the United States have been falling.

Mr. SHAYS. I just have two more questions here. What is wrong with a stable inflation rate of, say, 2½ percent? Why does it need to be less than that? Why can't we just have an inflation rate of that if it is stable?

Mr. GREENSPAN. First of all, we are not sure what our inflation rate is, but the point is that if you try to maintain an inflation rate other than whatever stability is—and I am not arguing that the consumer price index is picking up the true inflation rate—it is very difficult to maintain an inflation rate at any particular point. There is a tendency, at least in my judgment, for it to accelerate for lots of different reasons, and the only viable goal that one can have when one looks for stability is to have stable prices.

If you have a constant level of real inflation, and I distinguish that from what we measure in our CPI, there is basically over the years an undercutting of the value of the currency, the purchasing power of the currency through time, and history has never suggested that that is something desirable for a nation, especially one in which we are the principal reserve currency of the world.

Mr. SHAYS. OK. It strikes me, though, that our economy has done very well at times with a fairly stable inflation rate, but the economy has grown significantly as well. And I will take that growth over an inflation rate that doesn't seem to change all that much.

But could I just ask this one last question? I got the sense listening to you that you were really saying that the Fed is somewhat powerless to really have much impact. That is one of the feelings that was coming across to me. And almost like we couldn't depend too much as well on modeling.

It seemed to argue for the arts approach and also seemed to argue that with our impact—with funds overseas and so on and the world situation we will not be able to have much impact.

Is that your testimony?

Mr. GREENSPAN. No, I would certainly hope not, Mr. Shays. There is no question that the globalization of the economic and financial system has required us to be far more cognizant of what is going on abroad and to recognize that trade in goods and services in the United States continues to increase as a share of our total activity, and that we are more and more part of the international system, and we have to be aware of that.

But to say that monetary policy is not effective I think belies the evidence. Indeed, there are many people out there who suggest that 25 basis points, which is all we moved on February 4, rumbled throughout the world at a reverberation which put to rest views that American monetary policy——

Mr. SHAYS. But don't misunderstand me. Not affect it to have impact and cause distortions and so on, but in effect to get us where we want to go.

Mr. GREENSPAN. No. I think that if I look back the last 5 or 6 years I would say that we started in the spring of 1989 recognizing through a lot of the data that we were picking up, both anecdotally and otherwise, that we were running into a very severe problem of strained balance sheets which a number of us called the credit crunch.

And I think that in recognizing that and recognizing how monetary policy interacts with balance sheets of both household and financial institutions we were able to calibrate the level of monetary policy in a manner to address that. And in retrospect, I would say that as best I could judge it was quite successful.

And in that regard I think that particular period was one in which we did well. I certainly look back at earlier periods which we have done well and we have done less well. But I would scarcely argue that the monetary policy by its nature is ineffectual, and I would say that I sense none of that in the current period.

Mr. SHAYS. Thank you, Mr. Chairman.

Mr. SPRATT. Thank you, Mr. Shays.

Mr. Cox, did you have one last question on which you wanted clarification?

Mr. COX. Well, I just wanted to understand a particular part of the Chairman's testimony in response to Congressman Shays. You point out that your estimates of U.S. currency held abroad are subject to considerable error. That was your testimony.

Mr. GREENSPAN. That is correct.

Mr. COX. And I wonder if you can quantify that for us. What is the degree of error? Do you have any idea?

Let me ask it in this context, in the same context that Congressman Shays asked it. The year-over-year growth in M1 through midyear this year was 5 percent. The year-over-year growth in the monetary base through midyear was 9 percent. I hope you can tell me that those figures are accurate. Assuming that they are, is the increase in U.S. currency held abroad—or at least your likely range of error in estimating it—sufficient to explain that spread?

Mr. GREENSPAN. Well, the difference between the two, since currency appears in both, the difference essentially is transaction balances in M1 and bank reserves in the other. And obviously, the bank reserves are very closely related to the transaction balances because that is the reserves on which transaction balances are required.

The difference is in the weights between currency and the other elements in them, and the reason why, since currency is a bigger element in the monetary base than it is in M1, the growth in currency has been a critical factor there.

So, our judgment based on a lot of indirect analysis is that the majority of U.S. currency outstanding is held abroad and that that

ratio has been rising, which is another way of saying that more than half of the increase in the currency, significantly so, has been moneys moving abroad.

We are looking at this issue in some considerable detail and are hoping to find better ways to make direct measures of who holds our currency abroad, what are they doing with it, what is the quality of the currency, the turnover, and a variety of other issues which we have not been able to get a handle on.

And I have decided that in conjunction with, I think, appropriate requests coming from the Congress and GAO with which we agree we are going to try to find ways to do a more detailed direct evaluation of how to estimate the currency abroad.

The problem, obviously, is that anytime you try to do something like that there is a cost, and we have to make a judgment as to whether the results that we perceive to be obtainable from making those types of studies are worth the research costs that would be involved in doing that.

My own impression is it is becoming a big enough issue that we had better get a much greater sense of what those data are.

Mr. SPRATT. Mr. Chairman, you have been very forthcoming and patient in your responses to our questions. We appreciate greatly your contribution to the hearing, your being here today, and we look forward to working with you on these problems in the months ahead.

Thank you very much.

Mr. GREENSPAN. Thank you very much, Mr. Chairman, and members of the committee.

Mr. SPRATT. Our next panel of witnesses is Stephen Axilrod, Rudi Dornbusch, and David Wyss.

I have no preferred order of proceeding. If you have one among yourselves, we will defer to that. If not, we will proceed alphabetically with Stephen Axilrod.

Mr. Axilrod, thank you very much for coming here. You have prepared and submitted your testimony which, without objection, we will make a part of the record so that you can summarize it if you wish. The floor is yours.

STATEMENT OF STEPHEN AXILROD, FORMER STAFF DIRECTOR FOR MONETARY AND FINANCIAL POLICY, FEDERAL RESERVE BOARD

Mr. AXILROD. Thank you, Mr. Chairman. I will summarize it, and I hope briefly.

I will discuss some of the sources of uncertainty that have become prominent in recent years and have been raised by the committee. But first I would like to review some approaches to monetary policy that have been suggested or followed as part of an effort to minimize the odds on mistakes in an unpredictable world.

As you know, generally people have dichotomized approaches between a rule-based policy and a more or less completely judgmental policy. A fixed rate of growth in the money stock has been one of the more popular rules that have been proposed. Such a rule was given some practical credence by the acceleration of inflation in the 1970's when it was alleged that the Fed did not pay sufficient attention to money behavior in policy.

Indeed, some claimed the Fed went out of its way to ignore the monetary targets that it set for itself by, for example, continually shifting the base of these targets.

Money supply and other rules such as a fixed exchange rate or a fixed gold price were thought to provide policy with an attainable objective that would eliminate the need to make predictions about the economy or to rely on policymakers' judgments. Predictions and judgments were generally considered to have more chance of being wrong than right.

Of course, the rule might well also be wrong, which is the fundamental problem with it. But for those who advocate rules, the answer would be that in concept it could be changed. But really if you advocate rules strongly enough, you should also advocate that changes should be quite rare, else discretion and its potential for error would sneak in by the back door.

Of course, discretionary policy has been the fundamental approach taken in this country, and elsewhere for that matter. In the United States, flexibility has meant that the Fed has taken judgmental decisions about an overnight money market interest rate, in essence, the so-called Federal funds rate, and the rate of growth in the money supply has emerged more or less passively from the process.

Of course, judgment is not always right. You always have the problem of whether policy adjustments should be large or small; and you have the basic problem of frequency.

The 1970's are often given as an example of a period when small policy adjustments led to an unfortunate acceleration of inflation because exogenous shocks, the two large oil price increases, were not adequately taken into account.

In the very early 1980's, the Fed adopted an approach that involved large and also frequent policy adjustments to reduce the inflation that emerged from the 1970's. This occurred because the Fed, in practice, at the time bowed in the direction of a money supply rule by taking a range of growth in the narrow money supply M1 as the target and letting the Federal funds rate adjust more or less automatically to deviations in money from its targeted path.

A policy vote did not have to be taken for each funds rate adjustment thereby overcoming a certain inertia on the part of policymakers faced with uncertainty. That policy was followed for a period of about 3 years before the Fed returned to its more normal conservative approach.

The period of large funds rate adjustments was made possible for two main reasons. First, the Fed had a clear and certain overriding policy goal of reducing inflation, and second, it was believed that the role of money supply, M1, in the economy was stable and predictable enough to provide at least a crude practical tool for reaching that overriding objective.

Once the Fed had to concentrate simultaneously on both encouraging economic expansion and containing inflation, and once pervasive changes in financial structure distorted the money supply, there was no longer a sound basis for the policy of large, more or less automatic adjustments in the funds rate, and that policy was abandoned in late 1982. And the Fed subsequently has stayed with

a judgmental policy of relatively moderate, if not small, adjustments in the Federal funds rate.

At present, uncertainties still abound, and from a macroeconomic perspective I would emphasize the question now of whether we might be on the edge of a strong worldwide surge in growth and demand for capital goods. If it emerges, control of inflation here would become more difficult.

Incidentally, such a surge in growth would also help to explain the current, relatively high level of real long-term interest rates around the world because they would, and I believe do, reflect a potential for a large demand for capital.

Now, that would be a transitory cyclical source of uncertainty. The committee is concerned much more with structural sources of uncertainty which would tend to persist over time and affect policy decisions and implementation in a wide variety of economic circumstances.

Given the comparative success of monetary policy in recent years, it would appear that these sources of uncertainty have not proved to be much of a problem. I am going to review a few of them because I think they may become more of a problem actually in the years ahead when our economy stops being in such a nice benign growth phase as it has been for the past couple of years.

I will skip over the issue of measurement and data problems because these have been discussed already more than adequately, and one of the other panelists has a full-scale discussion of them. I would only mention that I would emphasize the need for prompt and reliable data even on a preliminary basis because monetary policy works with a lag and the sooner it acts the better.

The sooner it acts the less extreme its actions will have to be, and thus I would put great reliance on the need for a quick flow of data. If preliminary data is coming in wrong, you could have false signals. I think the accuracy of such data has weakened in recent years as samples have been made smaller and other cost-saving devices have been implemented.

I would like to spend a little more time on the question of financial structure. As you know, the rapid changes in the structure of the depository system and the security markets over the past decade or two have added very considerably to monetary policy uncertainties. I am not going to review the well-known structural shifts in any detail, but all of the changes have made it more difficult for the Fed to predict responses to monetary policy. They have also caused money supply concepts and measures to become fuzzier and much less practically useful as either a guide for or indicator of monetary policy.

Money supply measures have not only become less viable as guides for policy but also, because of the changes that have been made in the structure of reserve requirements, they have become more difficult to control. With zero reserve requirements on nontransactions deposits, broader money measures have become more difficult to control directly through the reserve base of the banking system, even if one wanted to. While the narrow measure of money supply might still be controlled within a broad range as well as in previous years, it has lost its significance. Many checking accounts are held at nondepository institutions, and in any event

funds can now be readily transferred between other financial instruments and checking accounts at minimal cost.

In short, the link between money growth and the future behavior of the value of the Nation's output, never too precise at best, seems to have become far too loose for money growth to be taken as a particularly useful guide for policy.

Earlier hopes that after a time a more predictable relationship between money and GDP would emerge once structural changes in the financial system abated have not proved to be realistic so far. The pace of structural change does seem to have slowed. But perhaps enough time has not yet passed to get a reliable sense of how the public will be managing its assets under the changed conditions. Or it may well be, which is what I suspect, that the structural changes and modern financial technology have made it practically impossible to measure money supply adequately, even if the concept itself retains a certain amount of meaning.

The distinctions among transaction balances, near-moneys, and longer term forms of savings have become much less clear. Also as I mentioned, it has become more and more possible to quickly transfer funds as needed at relatively little cost among various assets and checking accounts. With the money supply becoming a much less useful reference point for taking its bearings, money policy has per force become much more judgmental.

However, I don't think M1 is totally useless. And I would like to add that either the narrow money supply, M1, or the monetary base does retain some residual value for policy. That is because changes in the base and to a substantial degree in M1 can be construed as representing the amount of money that the Fed, an exogenous factor in the economy, has added and made available to the economy independently, as it were, of the current flow of demand for credit and goods.

Trend changes in money—M1—or the base are useful gauges for the Fed of whether it is leading or simply responding to the economy, even though specific growth rates in the measures are not reliable targets for policy. If growth in M1 or the base has slowed while interest rates rise, one might conclude that the Fed has been following a more restrictive policy.

On the other hand, if growth in M1 has accelerated while interest rates are rising, one might conclude that the Fed has become more accommodative and that the rise of interest rates has been basically a market phenomenon driven by expanded credit demands coming from within the economy.

The preceding analysis is oversimplified because in practice the Fed will also have to take account of shifts in money demand and between demand deposits and currency that may be occurring relative to GDP, or of the role of expectations in affecting rates. Nonetheless, I believe monetary policy judgments can be helped by at least looking over one's shoulder at the behavior of the base or M1.

On international questions, the committee mentioned the question of uncertainties relating to fluctuating exchange rates. I don't believe those fluctuations are themselves a great problem unless they become so extreme as to destabilize commodity and financial markets.

I would argue rather that it has been the increasing freedom with which capital can flow among key international markets and the greater sensitivity of traders in one market to events in another that has added to monetary policy uncertainties.

These flows and attitudes, of course, affect the exchange rates. But more importantly for the United States, they also affect interest rates here, and our economy is more pervasively affected by interest rate rather than exchange rate changes.

Not much can be done about this. It is the way of the world. But it does mean that the Fed is going to be less able to predict an interest rate change in longer term markets from any given change in the short-term interest rates that it does control.

Moreover, it does mean that our domestic markets could be undesirably affected from even minor disputes and disruptions in international financial and economic dealings, the most recent example being the adverse effect on our bond market from the weakening of the dollar this year caused by the trade dispute with Japan.

And I have very brief conclusions, Mr. Chairman. I doubt that the deficiencies in Federal statistics or the problems generated by ongoing market structural changes in recent years have made economic forecasts significantly more difficult or worse than in earlier postwar years, when allowance then had to be made for such major factors as the military buildup of unknown dimensions or the aftermath of uniquely large exogenous price shocks.

But it is probable that certain structural changes, such as the changing role of the banking system recently, may for a time have misled monetary policy since banks did not respond as promptly or to the same degree to monetary easing in the earlier part of this decade as had been the case in previous periods.

The structural changes in banking and finance have probably increased uncertainties associated with the use of econometric models for forecasting or predicting the results of alternative policies. They are pretty uncertain at best anyhow.

But in any event, the Fed's forecast has traditionally been a judgmental one with models or equations for particular sectors employed for whatever insights they might provide.

And as I mentioned, I would come down very strongly for bolstering the Federal statistical program because I believe a good flow, a reliably good flow of current data are very important for monetary policy, recognizing that policy works with a lag. So, the slower you get started on tightening or easing, the more difficult your job is going to be. The faster you get started, the better job you will do.

Because of the vast structural changes affecting depository institutions in the financial system generally, the Fed has, at least for now, lost the money supply's function as a useful anchor against unfavorable or unexpectedly strong winds. But as explained earlier, there remains, in my view, a residual role to be played by the behavior of the monetary base or M1 in helping the Fed come to its policy judgments and in evaluating its policy stance.

On the international side, as I just mentioned, I would argue that they are generating uncertainties for the Fed in judging what is likely to happen to interest rates that are not within its con-

trol—because markets are globalized and subject to a wider range of shocks that reverberate on our markets.

Finally, the increased sensitivity, not to say skittishness, of domestic and international investors is an additional strong argument for maintaining a reasonably stable and consistent monetary policy—that is, with inflation not going up too much or really there being a strong deflation—in order to avoid extreme market reactions that threaten to destabilize the economy as a whole. That sensitivity is also a strong argument for enhancing international economic cooperation among the leading countries, a platitude that is more often honored in the breach than in the observance.

Thank you.

Mr. COX [presiding]. Thank you, Mr. Axilrod.

[The prepared statement of Mr. Axilrod follows:]

MONETARY POLICY AND SOURCES OF UNCERTAINTY IN RECENT YEARS[1]

by

Stephen H. Axilrod

Monetary policy is always formulated in face of uncertainties about the true state of the economy and about the responses of businesses, consumers, and financial institutions to actual and expected shifts in policy. I will discuss some of the sources of uncertainty that have become prominent in recent years. First, however, I will review approaches to monetary policy that have either been suggested or followed as part of an effort to minimze the chance of mistakes in an unpredictable world.

Alternative Policy Approaches

Two opposing approaches to policy implementation can be distinguished. One would have policy be guided by a more or less inflexible rule. The other would permit a flexible judgment based, discretionary policy.

A fixed rate of growth in the money supply has been one of the more popular rules that have been proposed, though there has been great debate about how to define the money supply for that purpose. Such a rule was given some practical credence by the acceleration of inflation in the 1970's, when it was alleged that the Federal Reserve did not pay sufficient attention to money supply behaviour in formulating and implementing monetary policy. Indeed, some claimed the Fed went out of its way to ignore those monetary targets it had set for itself—doing so, for example, by continually shifting target bases.

Money supply and other rules--such as a fixed exchange rate or fixed gold price—were thought to provide policy with an attainable objective that would eliminate the need to make predictions about the economy or to rely on policy-makers' judgment. Economic

[1]Prepared for a Hearing before the Commerce, Consumer, and Monetary Affairs Subbcommittee of the Committee on Government Operations of the House of Representatives, August 10, 1994.

forecasts and policy judgments were considered to have as much or more chance of being wrong as being right.

Of course the rule might well also be wrong. The answer to that would be that the rule in concept could be changed. But those who strongly advocate rules would very likely also advocate that changes should be quite rare else discretion and its potential for error would enter by the back door.

The more flexible discretionary approach would allow policy to alter its stance as it learns new facts about the world or discovers more about the response of the economy under changing circumstances. That has been the fundamental approach to monetary policy in this country, and elsewhere for that matter.

Flexibility in the U.S. has meant that the Federal Reserve in practice has taken judgmental decisions about an overnight money market interest rate (the so-called Federal funds rate) or some proxy for over-all money market conditions (such as the banking system's free reserves or level of essentially overnight adjustment borrowing at Federal Reserve Banks). The rate of growth in the money supply has emerged more or less passively from the process.

A discretionary policy involves judgments about the frequency and magnitude of policy adjustments. If one were very certain about the state of the economy and responses to policy, a flexible approach could--to take an impractical example--involve only one or two large policy adjustments that would then be followed by an economy that evolves in the presumably most desirable way. But with uncertainties pervasive, policy authorities instead generally opt for small, frequent, easily reversible steps.

The 1970's are often given as an example of a period when small policy adjustments led to an unfortunate acceleration of inflation because exogenous shocks--the two very large oil price increases of the period--were not adequately taken into account. The practical question was not only one of economic analysis and predictability. In addition, one would suppose that policy-makers had their own uncertainties about how

much pain should be inflicted on the economy and over what period to minimize the inflationary impact of the exogenous price shocks.

In the very early 1980's, the Fed adopted an approach that involved large and also rather frequent policy adjustments to reduce the inflation that emerged from the 1970's. These adjustments were characterised by unhistorically large movements of the Federal funds rate between policy meetings. This occurred because the Fed in practice at the time bowed in the direction of a money supply rule by taking a range of growth in the narrow money supply (M1) as a target and letting the Federal funds rate adjust more or less automatically to deviations in money from its targetted path. A policy vote did not have to be taken for each funds rate adjustment, thereby overcoming a certain inertia on the part of policy-makers faced with uncertainty.

The policy of large and more or less automatic adjustments of the funds rate was followed for a period of about three years before the Fed returned to its more normal, conservative approach to flexibility. The period of large funds rate adjustments was made possible for two main reasons: first, the Fed had a clear and certain overriding policy goal of reducing inflation; and second, it was believed that the role of money supply (M1) in the economy was stable and predictable enough to provide at least a crude practical tool for reaching that overriding objective.

Once the Fed had to concentrate simultaneously on both encouraging economic expansion and containing inflation and once pervasive changes in financial structure distorted the money supply, including its relationships to interest rates and income, there was no longer a sound basis for the policy of large more or less automatic adjustments in the Federal funds rate. The Fed abandoned that policy in late 1982.

Since then the Fed has returned basically to a policy that involves the need to make a decision about individual changes in the funds rate. This approach to policy has on the whole worked well in recent years. Inflation has thus far remained under reasonable

control, and we are now into the fourth year of recovery and expansion from the mild recession at the beginning of the decade.

Still, uncertainties abound. From a macro-economic perspective, I would emphasize the question of whether we might be on the edge of a strong world-wide surge in growth and demand for capital goods. If it emerged, control of inflation here would become more difficult. Incidentally, it would also help to explain the current relatively high level of real long-term interest rates around the world.

Whether the demand for capital goods expands sharply is a transitory, cyclical source of uncertainty for policy. The particular areas in which such uncertainties appear will change with the economic cycle or the pattern of growth.

The structural sources of uncertainty that are the subject of this Hearing would tend to persist over time and affect policy decisions and implementation in a wide variety of economic circumstances. Given the comparative success of monetary policy in recent years, it would appear that these sources of uncertainty have not proved to be much of a problem. On the other hand, it may simply be that the economy has fortuitously fallen into a benign phase of self-sustaining growth, which has tended to override the impact of structural sources of uncertainty and which has required no more than the small incremental changes in policy that would otherwise in more volatile times lead to trouble.

However that may be, it seems clear that policy is best served over time if there is a clear understanding of the structural sources of uncertainty, their policy implications, and what if anything should or can be done to moderate them.

Measurement and Data Problems

For many years now the U.S. Government has been cutting back--relatively if not absolutely--on monies and resources devoted to the collection and compilation of economic statistics. That may have affected the reliability of preliminary more than final data. But since monetary policy works with a lag, and the sooner actions are taken the less extreme they eventually have to be, it is the early, preliminary data that in many cases are crucial.

Whether preliminary or "final", inadequate data run the risk of providing signals that cause policy to move prematurely, or not soon enough, or, more rarely, in a direction that quickly has to reversed.

It might be argued that statistical reporting deficiencies are unlikely to obscure the need for large or directional changes in policy because the underlying shift in macro-economic circumstances should then be so clear as to be overriding, given the wide array of statistical and other reports currently available. However, doubts about the extent of response by the economy to a sea change in circumstances--such as a large oil price hike or a military build-up or phase-down--will always exist, and they need to be resolved as promptly as possible by a reliable flow of current data.

In any event, it seems clear that we are now close to, if not at, the point of diminishing returns from cutting back on data. Moreover, the need for reliable data should increase over the next few years. The U.S economy is probably moving into a phase of expansion that has a greater potential for instability and inflationary disruptions than was the case in very recent years, which would reduce the margin for error in the Fed's monetary policy decisions. The government should be increasing the resources devoted to basic statistical collection and compilation.

Unreliable preliminary data, for example, not only can mislead policy but also may lead to unnecessary day-to-day volatility in financial as well as product markets. And so-called final data of course need to be timely and not subject to substantial later revision to be most useful for policy.

Financial Structure

The rapid changes in the structure of the depository system and of security markets over the past decade or two have added very considerably to uncertainties confronting monetary policy. There is no need to review the well known structural shifts in any detail. They have included the necessary deregulation of deposit ceiling interest rates, the emergence of checking account in money market funds and tied into broader securities

accounts, the reduced role of banks and thrifts in lending, and the greatly increased sensitivity of the public to changes in the structure of interest rates.

All these changes have made it more difficult for the Fed to predict responses to monetary policy. They have also caused money supply concepts and measures to become fuzzier and much less practically useful as either a guide for or indicator of monetary policy.

Money supply measures have not only become less viable as guides for policy but also, because of the changes that have been made in the structure of reserve requirements, broader money measures have become more difficult to control directly through the reserve base of the banking system, even if one wanted to. While the narrow measure of money (M1) remains fairly closely related to the reserve base because required reserves as well as clearing balances still are held against demand deposits and because currency in circulation is effectively reserved at one hundred per cent, it has lost its uniqueness as a measure of transactions balances. Many checking accounts are held at non-depository institutions, and in any event funds can be readily transferred between other financial instruments and checking accounts.

In short, the link between money growth and the future behaviour of the value of the nation's output--never too precise at best--seems to have become far too loose for money growth to be taken as a particularly useful guide to policy.

Earlier hopes that after a time a more predictable relationship between money and the nation's gross domestic product (GDP) would emerge once structural changes in the financial system abated have not proved to be realistic so far. The pace of change does seem to have slowed significantly. Perhaps enough time has not yet passed to get a reliable sense of how the public will be manging its assets under the changed conditions. Or it may well be that the structural changes and modern financial technology have made it practically impossible to measure money supply adequately, even if the concept itself retains a certain amount of meaning. The distinctions among transactions balances, near-monies, and

longer-term forms of saving have become much less clear; and it has become more and more possible to quickly transfer funds as needed at relatively little cost.

With the money supply becoming a much less useful reference point for taking its bearings, monetary policy has perforce become even more judgmental. I would like to add, though, that either the narrow money supply (M1) or the monetary base (esentially currency in circulation and banks' reserves at the Fed) does retain some residual value for policy. That is because changes in the base and to a substantial degree in M1 can be construed as representing the amount of credit or money that the Fed has exogenously added to the economy.

Trend changes in these measures are useful gauges for the Fed of whether it is leading or simply responding to the economy, even though specifice growth rates in the measures are not reliable targets for policy. If growth in M1 or the base has slowed while interest rates rise, one might conclude that the Fed has been following a more restrictive policy. On the other hand, if growth in M1 has accelerated while interest rates are rising, one might conclude that the Fed has become more accommodative and that the rise of interest rates has been basically a market phenomenon driven by expanded credit demands.

The preceding analysis is oversimplified because in practice the Fed will also have to take account of shifts in money demand that may be occurring relative to GDP or of the role of expectations in affecting interest rates. Nonetheless, I believe monetary policy judgments can be helped by at least looking over one's shoulder at the behaviour of the base or M1.

International Factors

The greatly increased interconnectedness of world markets has added another and inevitable element of uncertainty for monetary policy. I do not believe fluctuating exchange rates are themselves a great problem in that respect unless they become so extreme as to destabilize commodity and financial markets.

I would argue, rather, that it has been the increasing freedom with which capital has flowed among key international markets and the greater sensitivity of traders in one market to events in another that has added to monetary policy uncertainties. These flows and attitudes of course affect exchange rates when those rates are free to fluctuate. But more importantly for the U.S., they also affect interest rates, and our economy is more pervasively affected by interest rate rather than exchange rate changes.

It seems clear that longer-term interest rates here have become increasingly influenced by attitudes of international investors, which comprise both foreigners and U.S. nationals. In consequence, the relationship between money market interest rates controlled by Fed policy and the other longer-term rates that are outside its control has become looser, more difficult to predict. Depending on monetary policies abroad, the expectations of a broad range of international investors, and unexpected developments in any key international market, the Fed may find that a particular policy change gets more or less bang for the buck than it has any reasonable historical basis for expecting.

Not much can be done about this in practice. It is the way markets are developing. But it does mean that the Fed needs almost as much information about attitudes in foreign markets as it does about what is motivating market participants in this country.

With globalized markets, there is a high premium on maintaining reasonably stable conditions in all key markets and on avoiding significant breakdowns in international economic policy relationships. The effects on our domestic markets can be undesirably magnified from even minor disputes and disruptions--the most recent example being the

adverse effect on our bond market from the weakening of the dollar this year caused by the trade dispute with Japan.

Conclusions

(1) I doubt that the deficiencies in Federal statistics or the problems generated by ongoing market structural changes in recent years have made economic forecasts significantly more difficult or worse than in earlier postwar years, when allowance had to be made for such factors as the impact of a military build-up of unknown dimensions or the aftermath of uniquely large exogenous price shocks. But it is probable that certain recent structural changes--such as the changing role of the banking system--may for a time have misled monetary policy since banks did not respond as promptly or to the same degree to monetary easing in the early part of this decade as had been the case in previous periods.

(2) Structural changes in banking and finance have probably increased the uncertainties associated with the use of econometric models for forecasting or predicting the results of alternative policies. But the Fed's forecast has traditionally been a judgmental one, with models or equations for particular sectors employed for whatever insights they might provide.

(3) Nonetheless, because monetary policy works with a lag and the sooner action is taken the better for the economy and markets, there is a high premium on obtaining as good and as prompt statistical information on a current basis as is possible. As the economy moves into a potentially more volatile phase of the current expansion, it becomes even more urgent to provide such data. The Federal statistical program has in my understanding deteriorated in that respect, and I would strongly recommend bolstering it--not only because of the advantage to policy but also to avoid the potential for costly market fluctuations that could result from misleading preliminary or even final data.

(4) Because of vast structural changes affecting depository institutions and the financial system generally, the Fed has at least for now lost the money supply's function as a useful anchor against unfavorable or unexpectedly strong winds. But, as explained

earlier, there remains in my view a residual role to be played by the behaviour of the monetary base or the narrow money supply (M1) in helping the Fed come to its policy judgments and in evaluating its policy stance.

(5) I would argue that for the U.S. uncertainties generated by international financial markets are mainly connected with unexpected and unpredictable impacts on longer-term interest rates, as credit markets here are increasingly affected by changing attitudes of international investors. I would tend to underplay fluctuating exchange rates as a source of uncertainty for monetary policy here, though their behaviour certainly cannot be ignored in judging the impact of policy on the economy. Interest rates would appear to have a more pervasive effect on our economy. And the greater international sensitivity of markets, along with the greatly enhanced role of expectations on behaviour of domestic market participants, has made it more difficult to judge the interest rate and also equity market effects of monetary policy actions.

(6) The increased sensitivity, not to say skittishness, of domestic and international investors is an additional strong argument for maintaining a reasonably stable and consistent monetary policy--in order to avoid extreme market reactions that threaten to destabilize the economy as a whole. It is also a strong argument for enhancing international economic cooperation among the leading countries--a platitude that is more often honored in the breach than in the observance.

Mr. COX. Mr. Dornbusch from the Massachusetts Institute of Technology.

STATEMENT OF RUDI DORNBUSCH, PROFESSOR OF ECONOMICS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Mr. DORNBUSCH. Thank you, Mr. Chairman—Mr. Cox.

In my testimony I want to talk about inflation targets and what monetary policy should do in relation to the exchange rate.

The traditional handicaps of Federal Reserve policy are thought to be that one doesn't know exactly where the economy is and where it is moving, one doesn't know exactly what is the structure of the economy and in what way does monetary policy affect it. And finally, that the timing of monetary policy is awkward in the sense that there is a long lag and a lag that is variable.

But I think there is an extra factor that reduces the effectiveness of monetary policy. Specifically, in the United States we do not have inflation targets. At the present stage of the business cycle that absence of an inflation target for the Federal Reserve is particularly awkward.

I think it is a source of the currency fluctuations, the source of the skittishness of asset markets, and it is an issue that would be well remedied at a time where most other central banks have in fact shifted to inflation targets and where the United States is about to leave the range that can plausibly be called price stability.

I think a specific inflation target has three merits. One that it affects inflation expectations and therefore directly affects inflation performance. For example, the Michigan household survey shows inflation expectations 3½ to 4 percent, but Federal Reserve policy assumes it is not going to get there at all. That discrepancy can only hurt.

The second advantage is that targets depoliticize at full employment Federal Reserve action. Last year one had agreed on an inflation target and this year one would agree to live with it, even if it is an election year.

In the absence of an inflation target there is far more room for procrastination, and that is the third merit. Day to day there is never a good day to tighten, and there is always another set of data that could come in and help explain whether there is really the time. And because the data are imperfect, one might even wait 2 months. And nothing really terrible happens by waiting a bit longer, except that a year later the inflation rate is a percent higher than it would otherwise have been and price stability is gone.

We are clearly in that situation today, and having an explicit inflation target would force far more discussion of whether we aren't leaving a 1- to 3-percent range that one can call price stability and moving into the habitual territory of overheating.

So, an explicit inflation target is desirable. There is an institutional question whether the Federal Reserve could announce that they will live within that by themselves or whether Congress has to do it for them. But there is no question that it should happen because it is good for U.S. macro performance and for understanding what the Fed is doing, and because it is happening everywhere else in the world. In a situation of sharply reduced inflation toler-

ance, I think that at least that has to be discussed, and I think it is hard to reject.

I think there is a tight connection to exchange rate questions. The large instability of the dollar that we saw a month ago had mostly to do with whether the Federal Reserve would react to what was perceived to be a U.S. overheating, would the Federal Reserve be allowed to act. In terms of the Congress and the administration, active interference from the administration in that discussion, arguing that there was no inflation in sight anywhere, even though everybody's forecast for next year has more than this year, I think suggests that once again an inflation target might be a good idea. Then currency markets will know that that is the policy direction with the only remaining uncertainty about how to implement them rather than the extra uncertainty of what in fact is the target that the Fed is trying to implement.

Mr. COX. Mr. Dornbusch, I wonder if I could ask you at this midpoint in your testimony——

Mr. DORNBUSCH. Actually, it is the last sentence.

Mr. COX. I am delighted to make it the midpoint if you have requirement for additional time to give more of your thoughts.

But I have got to suspend the testimony for probably no more than 25 minutes. The chairman, as you saw, left for a floor vote about 10 minutes ago. It is a 15-minute vote. I am told we are down to just a few minutes, maybe 0 or 1 minute, so I am going to have to dash. He will return before I do and the testimony both for the record and the TV cameras, as well as for our committee, can resume.

But I hope you will excuse me for just a few minutes. And I too shall return. Thank you.

The hearing is momentarily adjourned.

[Recess taken.]

Mr. SPRATT [presiding]. Mr. Dornbusch, you say you are on the last sentence?

Mr. DORNBUSCH. I think I have finished, Mr. Chairman. Just start with the next witness.

[The prepared statement of Mr. Dornbusch follows:]

MONETARY POLICY ISSUES[1]

Rudi Dornbusch
Massachusetts Institute of Technology

In fostering recovery, the Fed has done an outstanding job. The willingness to cut real interest rates to zero and sustain them at that level has not only foster a sustained and vigorous recovery. It has helped at the same time rebuild financial stability by improving balance sheets of households and firms, and government, beyond what mere strength in the economy would have done. But the even more difficult part lies now ahead in avoiding an overheating of the economy followed by the inevitable monetary crunch.

I will address in my testimony two issues: What is the role of inflation targets and what place is there for exchange rates in guiding monetary policy. I will conclude that an explicit inflation target, although no panacea, is a useful addition or framework of operation of the Fed now that monetary aggregates have too little stability to make them useful targets. The exchange rate is at best a useful guidepost but it should not move to the center of monetary policy. Specifically, internal stability-- full employment and moderate inflation-- are more important than sustaining a particular value for the dollar in world currency markets.

1Testimony before the Commerce, Consumer, and Monetary Affairs Subcommittee, Committee on Government Operations, House of Representatives, August 10th, 1994.

INFLATION TARGETS

The bias toward overheating comes in part from the political unpopularity of slowing growth before a major inflation is outright there for everyone to see. In part it results from the lags and uncertainties that hamper the effectiveness of monetary policy. But it is also clear that some of the problems are self-inflicted: Unlike many Central Banks, the Fed has been unwilling to endorse an outright inflation target. Of course, the Congress has also failed in encouraging explicit inflation targets. As a result, there is uncertainty in the markets' interpretation of Fed moves or non-moves.

Monetary policy is always complicated by two factors:

. The Fed does not know with confidence and assurance what the current and prospective strength of the economy is. The extra difficulty is the absence of a stable and hence predictable inflation-unemployment tradeoff.

. The extent to which changes in the Federal Funds rate translate into changes in long term rates, credit conditions and changes in real aggregate demand is uncertain and so is the lag with which monetary policy acts.

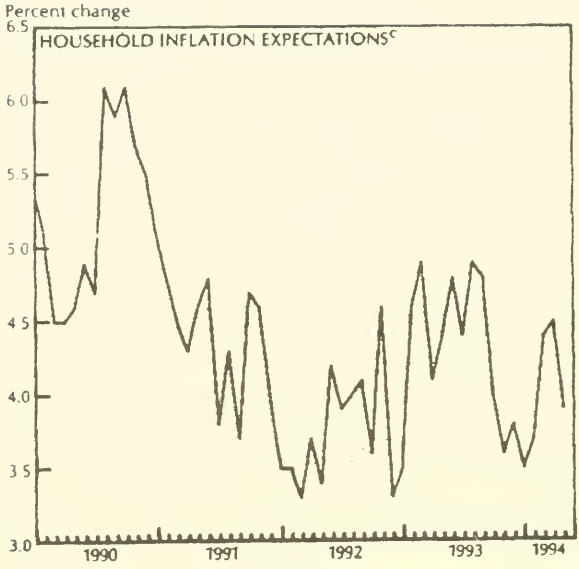
In judging what monetary policy is <u>trying</u> to do, the market today faces an extra complication: The Federal Reserve's attitude toward inflation and unemployment is not firmly established, certainly not to the point of explicit inflation targets. Accordingly, reluctance to act in what part of the market may

regard as an overly strong economy could either be interpreted as nonchalance on the issue of inflation or else a difference in judgment on the strength of the economy.

That uncertainty is counterproductive in at least two ways. First and foremost, an explicit inflation target acts as an anti-inflation device. Wage and price setters who have to make long term decisions will have a better benchmark by which to judge just how much inflation to expect and build into their contracts or list prices. Inflation targets cannot be a substitute for actual policy and, from one day to another, they cannot be expected to turn inflationary expectations. But they can surely play a constructive role in building medium term inflation expectations.

The accompanying Chart shows the inflation expectations as reported by the University of Michigan household survey. Even though actual 12-months inflation rate fell below 3 percent in 1994, inflationary expectations never came down below 3 to 3.5 percent. Even after a decade of moderate inflation, the possibility of a 3 percent ceiling on inflation is not in the slightest built into expectations.

In working on expectations, targets influence actual inflation and also the cost of capital. The present high level of medium and long term interest rates is mostly a reflection of inflationary expectations that lie significantly above current levels and of a Fed policy that responds too late and hence with extra vigor. Inflation targets, and acting on them, help stabilize


Percent change
HOUSEHOLD INFLATION EXPECTATIONS[c]
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
1990
1991
1992
1993
1994

expectations and in that way avoid exaggeratedly high long term rates.

An inflation target is also an important means to depoliticize monetary policy. A tightening of monetary policy is never popular. The more politicized the making of monetary policy and the less independent the Central Bank, the larger the benefit of inflation targets as a shield against overly delayed responses to an emerging inflation problem.

Of course, inflation targets do not automatically ensure good inflation performance. The Fed would still have to cope with the basic handicaps of policy outlined above: where is the economy and what is the appropriate dosage. But at a minimum the Fed would have to make explicit what it is trying to do and there would be a record by which to judge the Fed's performance.

A debate and agreement on inflation targets would also offer significant protection against political interference with monetary policy. It is commonly argued, by Congress and the Administration, that there is "no" inflation. True, inflation is low by historical standards. But it is rising and is already high by comparison with the experience of other industrial countries. That discrepancy is certain to rise over the next six month as disinflation continues in Germany and Japan.

In the United States, by contrast, with a narrowing GNP gap (See Chart), acceleration is a foregone conclusion. Indeed, accelerating inflation is already apparent in purchasing managers'

(Percent, DRI Estimate)
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10
-11
-1.2
1970 1971
1972 1973
1974 1975
1976 1977
1978 1979
1980 1981
1982 1983
1984 1985
1986 1987
1988 1989
1990 1991
1992 1993
1994 1995

price reports, in commodity prices reinforced by world recovery and a weak dollar, in employment cost and forecasts of unit labor costs.

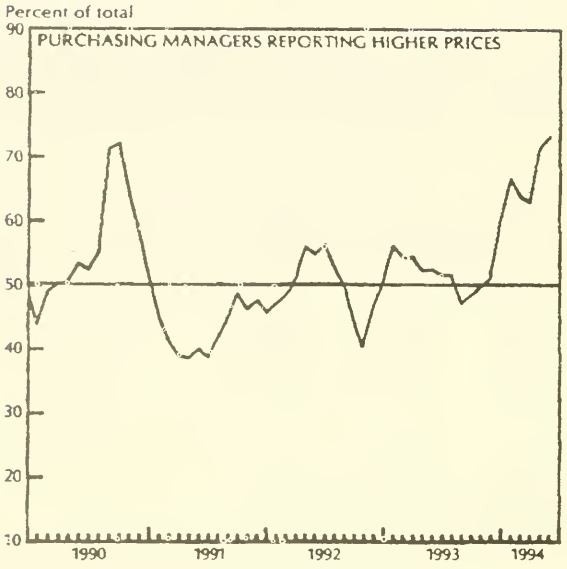
Table 1 Consensus Inflation Forecast

	1992	1993	1994	1995
US	3.0	3.0	2.9	3.2
Europe	3.9	3.3	2.8	2.7
Britain	3.7	2.8	2.9	3.8
France	2.8	2.2	1.7	1.8
W.Germany	4.0	4.1	2.9	2.1
Canada	1.5	1.9	1.3	2.2
Japan	1.8	1.3	0.4	0.8

Source: The Economist July 1994

The fact that inflation rises "only" from 2.7 percent in 1994 to 3.3 percent in 1995 (in the DRI forecast, to give a specific example) must not conceal the fact that it is moving far outside the range of 1-2 percent that can be called price stability. Inflation targets are an insurance against inflation drift or at least make the issue more concrete than the present arrangements.

Finally, inflation targets would avoid the quarter-by-quarter drift toward higher inflation that now may be underway. As long as there is no firm ceiling on inflation, an extra quarter of a percent inflation is not seen as threatening. Clearly the inflation problem will only be clear when inflation will have increased so much, that it becomes a political issue. by that


Percent of total
PURCHASING MANAGERS REPORTING HIGHER PRICES
90
80
70
60
50
40
30
20
10
1990
1991
1992
1993
1994

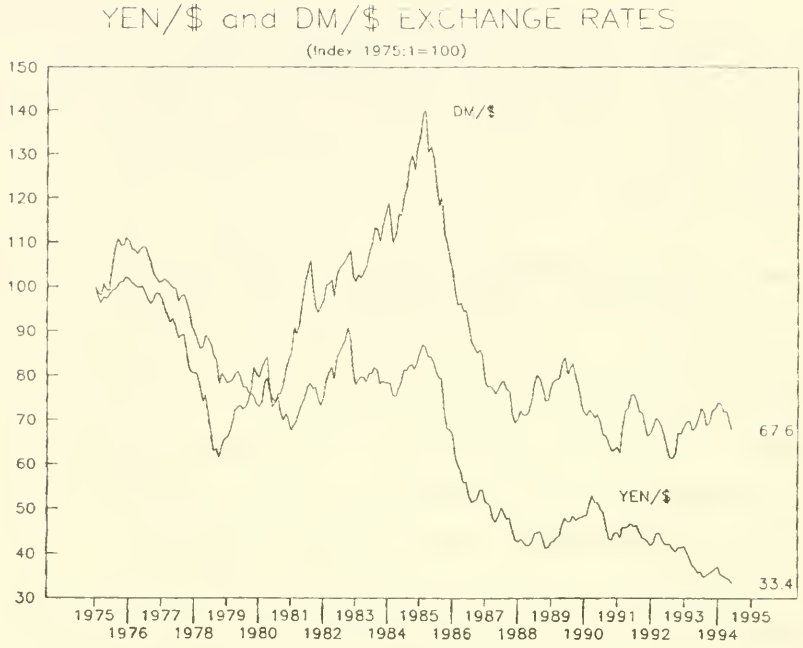
time, of course, inflation will be embedded in expectations, contracts, and interest rates. Accordingly, only a sharp cut of growth or even a recession will do the job that could be accomplished now by a mere slowdown.

EXCHANGE RATE-ORIENTED MONETARY POLICY

The dollar has just emerged from an all time low against the Yen and has been headed for an equally low level against the Deutsche Mark. What is behind the decline, should one be concerned and what to do about it, specifically in the design of monetary policy? Before making that connection, we briefly review the basic exchange rate issues.

A first point to make is the distinction between the movements of the dollar relative to the DM and the Yen on one side and the behavior relative to a much wider basket of currencies with due adjustments for changes in price levels. Financial markets focus on movements in nominal rates among the key few currencies. In that perspective the dollar/Yen and dollar/DM movements of the past few months offer great excitement. The Figure shows the trend decline of the dollar. In the perspective of the 20 year pattern of decline--interrupted by a short spike in the mid-1980s-- the recent movements do not even seem so large.

That impression is strongly reinforced when we look at a broad measure of competitiveness. The dollar has not changed much at all. Table 2 shows that the major changes in competitiveness


YEN/$ and DM/$ EXCHANGE RATES
(Index 1975:1=100)
150
140
130
120
110
100
90
80
70
60
50
40
30
DM/$
YEN/$
67.6
33.4
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995

took place in the depreciating European countries--Italy, Spain and the U.K. and Canada. Japan, by contrast, is the currency that strongly appreciates in real terms against all other countries. It not hard to understand the case of Germany: Japan's real appreciation makes up for the weaker dollar and the European depreciation of countries like Italy. In the U.S., Japan makes up for a more competitive Canada. Uniquely, Japan stands out with a sharp real appreciation.

Table 2 Real Effective Exchange Rates
(index 1990=100)

	1991	1992	1993	1994:June
US	101	101	103	102
Canada	98	91	89	86
Japan	106	108	123	128
Germany	96	97	99	97
UK	104	101	93	94

Note: Competitiveness using wholesale prices relative to a group of 22 OECD and 23 LDC countries. An increase in the index denotes a loss of price competitiveness.
Source: JP Morgan

Fundamentals

Exchange rates are like asset prices-- it is difficult to nail down with any precision what is the equilibrium rate. Two basic criteria are commonly advocated, the current account and purchasing power parity.

The current account view holds that sustained, large deficits in the current account are ultimately unsustainable since they involve increasing net international liabilities the scope for

which is limited. Thus, an exchange rate at which there is prospective path of large and possibly growing deficits is not going to last forever. And something that does not last forever, as Herb Stein has noted, will ultimately end. Forward looking expectations anticipate these developments and restore competitiveness and hence more limited deficits in due time.

How well does the mechanism work? If investors favor a country they do not ask many questions about deficits; in fact, they will claim that the deficit is a sign of the vitality of an economy where investment outruns saving. If an economy is not favored, by contrast, they will identify the deficit with a lack of competitiveness and blame large budget deficits for their mirror image of an external deficit.

At the peak of the dollar overvaluation in 1985 the deficit came to more than 3 percent. While the strong dollar was seen as an aberration, speculation to bring it down took its time. The large real depreciation of the subsequent years helped trim the deficit-- as did the US slowdown. But now, with a strong expansion, the deficit is widening once more. Because investor confidence does not favor the US, the deficit becomes an easy argument for speculation against the dollar.

What can foreign exchange market intervention do and should it be used? Intervention might try to accomplish one of three things: To help sustain orderly markets, to prick a bubble or to lean against a trend in fundamentals. There must be no doubt that

the last task--going against fundamentals--cannot be successful except for a very brief period of time. It might work for a day, a week or a month but it amounts to a futile effort. More than that, it increases volatility and instability.

Productive intervention then must be directed toward reinforcing orderly markets or pricking bubbles. The firmer is not a very controversial task. If, for some reason, markets show large bid-ask spreads or large moment to moment changes in the rate, intervention can help to smooth these changes. The criterion, of course, is the delicate one of not resisting a trend while smoothing the movements. Why is this at all necessary or desirable? If market participants react to volatility by withdrawing, volatility will thin out markets and in that fashion increase volatility. This vicious cycle impairs the functioning of markets and creates unnecessary noise. Moreover, to the extent that expectations are based on extrapolations of recent rate movements, noisy markets can create unnecessary runs in exchange rates.

There is little doubt that intervention works in smoothing markets. A market on the run is easily checked by determined intervention-- central banks, preferably in coordinated fashion, using large amounts of resources to reverse sharply undesired rate movements. Operating in thin markets reinforces the effectiveness of this kind of intervention.

The harder task for intervention has to do with pricking

bubbles. Dominguez and Frankel in their study Does Foreign Exchange Market Intervention Work conclude that it does and that it can usefully be employed specifically in this instance. They use the 1985-86 experience to make their point. The Plaza Agreement of September 1985 is a case in point although, as they document, constructive measures to bring the overvalued dollar down started as early as February of that year.

How does intervention work? In case of a bubble--i.e. fundamentals including current accounts and monetary policy do not support the current level of an exchange rate so that it is merely carried by expectations of further rate movements-- the sheer fact that central bank intervention is executed with the clear purpose of imposing a new rate will work by imposing capital losses on speculators who take the opposing view. Of course, there has to be an obvious bubble so that central banks can increasingly count on a broad part of the market to join them rather than take the other side. Pricking bubbles in the 1985-86 style differs sharply from futile attempts as in 1992 to uphold sterling or the Lira. These currencies were overvalued and intervention was a waste.

Why prick bubbles? Would they not, sooner or later, crash under their own weight? They well might, some time. But an asset price that is patently out of line as the dollar was in 1985-86 has important macroeconomic implications. Good management avoids situations where asset prices are grossly misaligned.

Should coordinated, massive intervention be used today to

stabilize the dollar? In 1977-78 Undersecretary Blumenthal and other members of the Carter Administration talked tho dollar down and succeeded beyond their wildest dreams, all the way up to a dollar crisis. In 1983-84 Undersecretary Beryl Sprinkel held a view of benign neglect toward a sharply appreciating and increasingly overvalued dollar. We now have seen a rerun of this script. First the dollar was talked down by the Clinton Administration and next was advocating benign neglect until rate movements got out of hand.

The depreciation of the dollar has not gone anywhere as far as the 1985 appreciation. But surely that cannot be an argument to try and get all the way out of line before corrections are allowed. The Sprinkel-Rubin view of benign neglect ultimately gets out of hand.

Monetary policy should <u>not</u> be targeted to achieve a particular value of the dollar. Its proper role is to foster price stability and full employment and that is already a full assignment. But when domestic objectives clearly call for a tightening (easing) of policies and the foreign exchange market cries out for the same, currency movements should be read as very early warning signals of an emerging inflation problem. Depreciation contributes directly, of course, by raising import prices. But the very spectacle of a sinking currency connotes an image of a lack of financial stability and resolve that cannot but feed inflationary expectations. For this reason, when conditions

are sufficiently clear as they are today, determined intervention and a significant hike in interest rates can fruitfully go hand in hand to demonstrate a determination of anti-inflationary policy.

Here our discussion joins again the issue of inflation targets. In the past 20 years we have seen a sharp increase in the variability of real exchange rates. In good measure this reflects the divergent inflation strategies among major economies.[2]

Table 3 Variability of Real Exchange Rates
(Coefficient of Variation, CPI-based)

	1960-72	1973-94
Germany-US	6.9	18.4
France-US	5.0	14.9
UK-US	5.6	14.7
Canada-US	3.3	7.7
Japan-US	12.7	21.6
France-Germany	6.1	4.2

A shift to inflation targets in the United States would do much to remove the inflation policy uncertainty component in the variability of real exchange rates. Let the Fed, finally, decide to announce an inflation target for the coming years, say 1 to 3 percent. Let those targets be public, monitored by Congress and vigorously pursued by Fed policies. In time they will come to be

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2 Table 3 shows the variability of relative CPIs (the standard deviation expressed as a fraction of the mean), measured in a common currency and using the US as the numeraire country. The data for these relative price variability measures are quarterly and correspond to the fixed and flexible rate periods. The table shows a large increase in variability in the shift to flexible exchange rates.

believed just as is happening in the UK, Canada, or Europe. Once the basic inflation strategy among major partners is on parallel course, the chief reason for wild currency swings-- the Fed won't move this year, big inflation around the corner, sell dollars-- will have gone.

Mr. SPRATT. We will go to Mr. Wyss.

Chris Cox will be back shortly and then we will have questions for the whole panel.

STATEMENT OF DAVID A. WYSS, RESEARCH DIRECTOR, DRI/McGRAW-HILL

Mr. WYSS. Thank you, Mr. Chairman. I am happy to be here to talk about the quality of the economic data, because that is how we make our living. DRI/McGraw-Hill is in the economic forecasting and consulting business. We are trying to tell our clients what is happening to their markets, what is happening to their costs. We rely very heavily on the government data to tell us where we are so we can tell our clients where they are going. And quite frankly, that job is getting more difficult because the quality of the data, in our opinion, has been deteriorating.

I don't think that this is necessarily because the data are getting worse, but because the economy is more complicated as we move more and more toward a service economy.

The fact that most of our data was created initially for the manufacturing-dominated economy of the 1940's and 1950's means that we are ignoring what is actually happening out there. That can be very costly to the economy, and it makes life very difficult for those of us who are trying to forecast what is going on.

It is probably true that you caught me at a low point in my belief in the data right now, because I spent most of last week trying to redo our economic forecast for the annual data revision that came out about a week and a half ago. That was one of the most innocuous revisions we have seen recently in terms of the overall GDP numbers.

But even so, you look at some of the components and you rather wonder whether they are measuring the same economy. As one illustration, the level of personal interest income was revised downward by $70 billion. That is over 10 percent of the value of that series. What happened that we can have this big a revision in a 3-year period? And what are the implications of that for our beliefs about the economy?

What we are worried about is not only that the data is wrong but that it is biased. There is a definite bias in the economic series, but it is not so simple as saying the data is always high or the data is always low. What is going on is the data is always a little too average.

Mr. SPRATT. Who?

Mr. WYSS. Average.

Mr. SPRATT. Aberrationist?

Mr. WYSS. No. Average.

The good years are always estimated too low, and the bad years are always estimated too high, so that the initial view of the economy always looks less cyclical than the reality. And that has an important policy implication. Because the bad years always look a little better than they actually are, there seems less need to take policy actions. Because the good years don't look as good, maybe we don't tighten quite as quickly as we should. I think that biases economic policy toward excessive gradualism, which wouldn't be needed if we knew what was actually happening.

This is a major problem not just for the quality of the economic numbers, but also for economic policy and government spending as well. We do not know how to measure quality changes in the service sector of the economy, and for much of the service sector, the Commerce Department quite frankly just throws up its hands and says there is no productivity change.

The largest industry in this economy is health care. It accounts for one out of every eight jobs in this country. It is larger than the steel industry, the auto industry, or any other industry that we know how to measure. And we say that there is no quality improvement in the health care sector. Well, would you rather be operated on today or 30 years ago?

I think it is clearly true that we are underestimating quality improvement and thus overestimating inflation in 80 percent of the U.S. economy. If the inflation rate is biased upward by only a half a point, which is probably a conservative estimate of the bias created by this lack of measurement in the service sector, over a 5-year period that means there is $30 billion in extra Federal spending because of escalation procedures in pensions alone. That is a significant sum of money in trying to balance a government budget.

As goods and services become more complicated, they become more difficult to measure. It is pretty easy to measure a ton of steel or a ton of aluminum. The quality doesn't change very much from year to year. But when you start talking about automobiles and computers, what we mean by quality becomes a very difficult issue.

A clear case—I have an "IBM Think Pad," a 486 computer. The Commerce Department, by its quality measurements which are based on the raw computing power of that machine, says that is the equivalent of the original IBM 7094 that I learned to program on 25 years ago.

But, you know, that computer 25 years ago was manned 24 hours a day, 7 days a week. It spent all its time crunching numbers. It was an amazingly useful machine. My little PC spends most of its time turned off in its carrying case. And when I am using it, most of the time I am crunching words, not numbers. It is really in many ways more a substitute for the $129 portable typewriter that I had 25 years ago than it is the $3 million mainframe computer that I was using at that time.

So, we overestimate quality in some sectors. We underestimate quality in other sectors. This means that we are misestimating dramatically the price changes that are really going on in this economy. To my mind that is one of the things that makes any idea of a strict price target very dangerous. If we don't know what prices are, how can we set an explicit strict target for them?

Data errors are major causes of errors in our forecasts, and since policy inherently depends on forecasts, that creates a problem. Over the last 10 years, errors in data have accounted for over half the errors in the forecasts made by our models. If we were only half as far off in our estimates of errors, I think the Federal Reserve and other agencies could do better in setting economic policy. I don't think this would solve all the problems of the world, but it would be a nice start in being able to manage the economy.

We believe that the U.S. economic data need significant improvement. A lot of that could be done in ways that do not necessarily

cost a lot of money, because our basic problem is that the data remains stuck in the procedures of the 1950's.

We are seriously overestimating and overcounting sectors of the economy because they were important 40 and 50 years ago. We still do house-by-house counts in the census of housing, a really expensive process.

By using modern survey methodology and by being more careful in how we collect our data, I think we could improve the quality of the data significantly at relatively minor cost. We need to make a serious attempt to count what is happening in the new parts of the economy—in the service sector, in computers, in software—because these sectors remain mired in the terminology and the definitions of 50 years ago.

We still count computers as nonelectrical machinery. When is the last time you saw a nonelectrical computer? We do that because they started out as business machines—as typewriters and the old-fashioned adding machines that you used a crank for. We haven't changed that definition in 50 years.

We count software in the service sector. That means when you buy that shrink-wrapped box down at your local Wal-Mart, it counts as a service, not a good. That is silly, given the way it is marketed. If you buy a book, it counts as a good. If you buy that same book produced on a CD–ROM or on a computer disk, it counts as a service.

We just don't know what we are counting anymore, and a real attempt to move the economic data into the 1990's, conceptually and statistically, would be very much worth the problems that it would cause in the near term to those of us that are using this data to measure what is going on in the economy.

One last point I would like to make. There have been some statements that it is no harder to forecast the economy today than it was 30 years ago. Actually, I think it is easier to forecast the economy today, or at least the economic numbers, than it used to be, because more and more of what we measure out there in the economy is being measured by the Commerce Department as simple trends.

We don't measure most of the economy. It is easy to forecast these numbers because we can apply the same trend rules that the Commerce Department does. The problem is it is easier to forecast the numbers the Commerce Department will produce, but it is harder to relate the numbers the Commerce Department is producing to what is actually happening in the economy.

I would like to thank you for giving me this opportunity to vent some of my frustration with the data.

[The prepared statement of Mr. Wyss follows:]

The Impact of Data Errors On Economic Policy

Presented by
David A. Wyss
Research Director
DRI/McGraw-Hill
24 Hartwell Avenue
Lexington, Massachusetts 02173
617-860-6751

Before the Subcommittee
on Commerce, Consumer and Monetary Affairs
of the Committee on Government Operations

Washington, D.C.
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Testimony
The Impact of Data Errors on Economic Policy

David A. Wyss
Research Director
DRI/McGraw-Hill

Mr. Chairman, members of the committee:

Thank you for inviting me here to speak about the quality of economic data in the United States. DRI/McGraw-Hill is in the economic forecasting and consulting business. We are trying to tell our customers what is happening to their markets and to costs of materials that they need in their businesses. We depend very heavily on government produced data to tell us what is happening in the market place. Without knowing where we are, it is difficult to know where we are going.

Like many analysts we are worried that the quality of that data has been deteriorating in recent years. The coverage of economic data series and the size of the revisions to the historic data are all troubling those of us who make our living by looking at these numbers. Government statistical methodology has not kept pace with the changes in the economy, and budget cuts have forced reductions in the number of series carried by the government and in the quality of those statistics.

Above all, we believe that these reductions and data-quality problems can cause significant errors in policy. These errors, in turn, can be very costly to the U.S. economy. Such an error may well have occurred early in 1990. The revised data showed a far weaker economy during the 1987 through 1989 period than the earlier numbers had . It seems clear in retrospect that the Federal Reserve was much too tight during that period.

Similarly, during the recession in 1990 and 1991, the earlier estimates indicated a very mild downturn. Later, revisions showed that the recession was more severe than had originally been estimated. If the Federal Reserve had known how the economy was suffering, they might have lowered interest rates more quickly. Such a move could have moderated the recession and boosted the sluggish 1991/1992 upturn.

In fact, that data may well have cost George Bush the election in 1992. The complacency concerning the sluggish economic recovery was certainly caused in part by the fact that the early reports were much stronger than the subsequent revisions to the data indicated. As the true weakness of the recovery became known, it became clear that more action should have been taken to encourage the expansion.

Biases in the Data

There is a definite bias to the economic data. Although the average revision is only slightly positive to GDP and most other economic series, which indicates little consistent bias, there is, in fact, a more insidious error: The preliminary estimates are biased toward the mean. This translates to early

estimates consistently overestimating growth during weak quarters, and underestimating growth in periods of strength. This error prompts the Federal Reserve, and other policy makers, to take action too gradually and too late in either phase of the economic cycle.

Reasons For The Weakness Of Economic Data.

A major problem of the economic data has been its inability to measure events in the service sector of the economy. Services now accounts for over 80% of employment in the United States. Prices, productivity and output in the service economy is poorly measured by our current statistics. It is easy to tell what the output of a steel mill is, it is much more difficult to determine the output of a software shop or a hospital.

In much of the service sector, the Commerce Department essentially throws up its hands. Many of the items in the sector are estimated as simple trends; actual data is available only after a significant lag. As a result, over the years less and less of GDP has been actually measured, and we have become far too dependent on trends and other indirect information. As Chart 1 indicates, the percentage of GDP that is measured directly in the National Income Accounts has dropped from 30 years ago: 52% of GDP was directly measured then, today, only 42% is. The problem is particularly critical in consumer expenditures on services and state and local government expenditures. In recent years, state and local government spending has had the biggest average revision of any component of the economy. Since a high percentage of this money is actually supplied by the federal government; it would seem relatively easy for the government to gather information on what other government entities are spending. These two components of GDP (personal consumption expenditures and state and local government spending) now account for over half of GDP, up from only one-third 30 years ago.

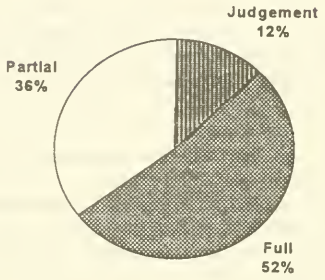
Price or Quality?

Another problem for economic policy is our inability to distinguish between changes in price and changes in quality of the goods and services produced. For most of the manufacturing sector, the distinction is reasonably easy. We all know what the price of a ton of steel is, and the quality of that steel has not changed much over recent decades.

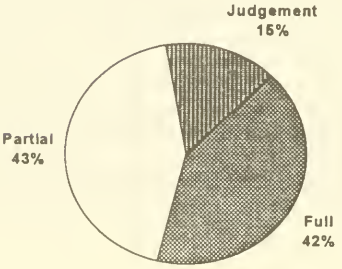
As goods become more complicated, the measurement becomes more difficult. How much of the increase in the price of an automobile, for examples, is caused by inflation, as compared with improvements in the quality of the car? But, still, for most goods we can, at least arguably, put together estimates of quality and distinguish between that and price increases.
In services the problem is less tractable. In many cases the Commerce Department simply assumes no productivity change. This is true in most of medical care and financial services, two areas which have probably been most impacted by changes in technology. To assume that a doctor today operates the way he did in the 1950s is an incredible stretch of the imagination.

If we underestimate quality improvement in these major sectors then the Consumer Price Index is consistently overestimating inflation. We do not know whether the inflation rate in the U.S. is really

Basis of Quarterly GDP Estimates
1960



Basis of Quarterly GDP Estimates
1991



Src: Martin Fleming, John Jordan, and Kathleen Lang, "The Impact of Measurement Error in the U.S. National Income and Product Accounts," Unpublished paper

3%. If, in fact, productivity growth is as strong in services as it is in manufacturing, the true inflation rate today should be 1.5%, about half the measured rate. Would the Federal Reserve be as eager to tighten if the Consumer Price Index were rising only 1.5%?

Fifties Data for the '90s

Much of our data collection procedures originated in the 1940s and 1950s. We are still classifying many products according to the standards of a bygone era. The most obvious, and often-quoted case, is that we still count computers as nonelectrical machinery. When is the last time you saw a non-electrical computer? Newer products are also affected. Prepackaged software is counted as a service that can be bought at your local discount stores.

Correcting these errors is difficult because in many cases it requires retroactive collection of data if we are to maintain historic integrity in the time series. In many cases, such as computers, it seems easier to live with misclassification than to fix it.

Fixing the data creates problems of its own. This January, the Bureau of Labor Statistics changed the survey methodology from which it produces the unemployment rate. The new methodology seems an improvement, but it has created two problems: First, we do not have a long enough history of the new methodology to seasonally adjust the series. The BLS has been using the seasonal adjustment factors calculated from the old methodology; consequently, the month-to-month changes have been highly erratic.
Second, since we have no history of the new methodology we do not know the cyclical behavior of the series. We assume it will be the same as the old series, but we have argued that the new measure of the labor force may be less cyclical, and the unemployment rate thus more cyclical. If so, we may be overestimating the unemployment rate needed to prevent inflation from accelerating, and running the economy at too cool a pace.

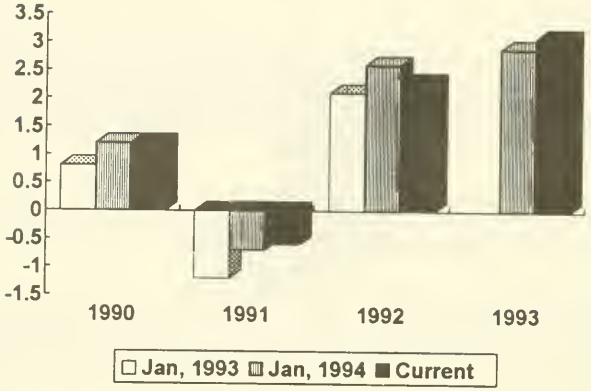
Data Error Leads to Forecast Error

Any economic policy depends on forecasts of the future. Errors in our estimate of the present create errors in our forecast of the future.

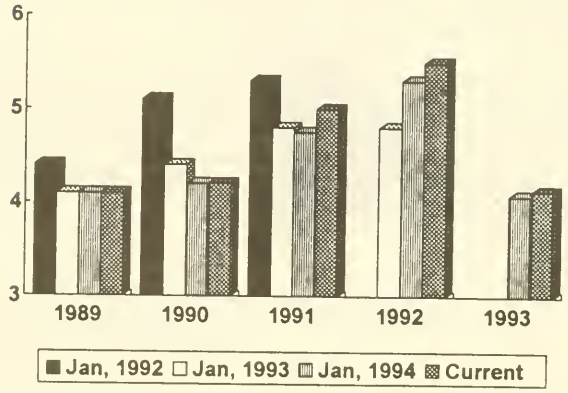
The evidence suggests that much forecast error is caused by errors in current data. Our own calculations, using historical model estimates, suggest that about half of the error of our forecasts is caused by errors in the data. If policy makers could cut their forecast error in half, it would be much easier to make correct policy decisions.

There are areas where forecast error has become extremely severe. The income side of the National Income and Product Accounts is the area most in need of assistance. In the last few years there has been a consistent downward bias in the initial measures of personal income and the saving rate. This underestimate, in turn, leads to an underestimate of consumer spending. We have learned over the years to adjust for this judgmentally, but since we never know the magnitude of the downward bias there is a tendency to underestimate on average.

The Changing Past: Revisions to GDP Growth



The Changing Past: Revisions to the Saving Rate



A more complicated problem is that errors in the data create errors in the economic models on which we rely. In general, data errors tend to bias downward our estimates of the impact of policy and other external variables on the economy. This may lead us to underestimate the impact of shocks, and thus to deal too slowly with their effects.

Recent Revisions

The recent revisions have illustrated the problems caused by underestimation. Every year the Commerce Department revises the accounts for the previous three years. This revision is normally released in July. Interestingly, the 1994 revision was relatively innocuous, showing only small changes in the pattern of GDP. But, even that revision revealed that the second half of 1993 was significantly softer than had been thought. This suggests that the Federal Reserve may have been more aggressive than necessary in tightening at the time. Even this revision showed major changes in the detailed statistics. The income side was particularly affected, with a sharp upward revision in profits and entrepreneurial income offset by weaker interest income. Personal interest income was revised downward by $70 billion, or 10%. The revision was a factor in weakening our projection of the second half of 1994.

The largest revision, however, was in 1993. That year, the new estimates of population growth were put into the forecast, raising our estimate of output in income by over one percent. The average growth rate for the preceding three years was revised up on average by nearly half a percentage point. This revision suggested that the 1990-91 recession was, in fact, smaller than the previous year had suggested, that growth during the expansion period was somewhat better than anticipated, and that in particular, productivity growth had not suffered from nearly as much of a slowdown during the recovery as had been thought, but was in fact about normal for an economic expansion.

Misestimates of inflation can also cost the Federal government money. The underestimation of productivity in the service sector also means that we are overestimating inflation in that sector. Services now account for 60% of the Consumer Price Index. With many government-spending components tied to consumer prices, we may, in fact, be giving away more money than the recipients are entitled to.

The bias is exacerbated by the antiquated market basket that is used to calculate the Consumer Price Index. The survey is relatively out of date and our estimate suggests that the resultant misweighting also tends to increases measured inflation. If inflation is overestimated 0.5 percentage point, it could cost the government $30 billion over a five-year period.

Coping with the Errors

There is no perfect way to deal with the uncertainties created by these data errors. The uncertainty is real. The bias has to be toward caution, however, which probably means being a bit tighter than necessary on monetary policy. Too contractionary a policy can be offset with a quick burst of stimulus. Too expansionary a policy requires a more painful cooling off period.

The reason for the caution is the asymmetric impact of unemployment on the economy. Inflation is easier to start than to stop. Allowing inflation to accelerate is painful. Boosting the economy to eliminate excess unemployment, while not instantaneous, is easier.

The uncertainties also bias policy toward gradualism. If the impact of the policies is uncertain, the temptation is to take small steps, and wait for the outcome to move again. This means that policy changes will tend to be too late. Perversely, because of the uncertainty in the lags with which policy affects the economy, they may also be too great. The Federal Reserve will have a tendency to continue to move in the same direction for too long.

The gradualism creates an opportunity for speculators which may pervert the Fed's intent. Bond traders know that the Fed is gradualist. They therefore can bet that the Fed will continue to move in the same direction. Thus bond yields will move sharply, in spite of a gradual move in the short-term interest rates that the Fed controls. Since the economy is more sensitive to long-term than to short-term interest rates, gradualism may not be possible.

When creating our models and using them for forecasts, we need to concentrate on the most accurate measures. This focus may require ignoring, or giving lower priority to series that we would prefer to use, but which are inaccurately measured. It may also require using "good" series as proxies for "bad" data.

Proposals for the Future

U.S. economic data needs significant improvement. We feel that several changes could be made to improve the data gathering and data release process.

1. Adopt the United Nations system of national accounts, and revamp the national capital flow reporting system. These should make our accounts consistent with those calculated by other countries, but by itself will do little to improve the quality of the data.

2. A reengineering of the data gathering process. We have to think about ways to gather data from surveys and other sources that do not require a complete count. Too often, antiquated data collection procedures are enshrined in legislation and regulation.

3. Make a serious attempt to measure quality in the service sector, and particularly in health care.

4. Survey the 50 states and a reasonable collection of municipalities to improve the accuracy for one of the largest sectors of the National Income Accounts at relatively low costs.

5. Improve the data collection procedures for personal spending, using a better-defined market basket.

6. Move toward a central statistical office, as in Canada and the United Kingdom, that would be responsible for all statistical measurement.

Mr. SPRATT. Well, the thanks come from us to you, all of you, for taking your time to come here and testify, because you have helped us toward an understanding of this problem. Granted we are still groping to see how significant the problem is, what if anything can be done about it, and I would like to first take that up.

If you were here when Alan Greenspan was here, I asked him specifically about an event that is far enough off so that it doesn't affect current policy but close enough at hand so that it still has some relevance to the world today, and that was the summer of 1990, the onset of the last recession, and whether or not the Fed's response was flawed by the fact that it didn't have adequate data at hand in a timely manner to respond to the worsening situation.

Do you think if the Fed had had better information about what was happening to M2, what was happening with the credit crunch, it might have acted more vigorously and therefore might have stemmed the recession of 1990? That is a question to the whole panel.

Mr. WYSS. My personal feeling is that if the Fed had known how weak the economy was in late 1989 or early 1990 they would have acted sooner to lower interest rates. I don't think they would have prevented the recession by doing that, because I think the last straw that caused the recession was the invasion of Kuwait. I don't think the Federal Reserve could have forecast that even if the economic data had been better.

But I do think that moving earlier both in response to the weaker economy going into the recession and even more to the weakening of the economy as the recession got underway would have moderated the depth of the recession and perhaps improved the subsequent upturn.

Mr. DORNBUSCH. I agree with that judgment. I would add that interpreting the data as a credit crunch, something that happened over 4, 5, 6, 7 months, is a relatively new phenomenon; and you need a lot of data for that. So, I think we would not have escaped the recession with some extra data. You would need the whole experience, and then you can look back.

Mr. AXILROD. I do think, and I have been clear on this in the past, that the Fed underestimated the credit crunch, came to it late, and I think what you saw then was M1 was not growing very rapidly and interest rates were declining. So, I interpret that the Fed was lagging in its response to a weakening economy, and they didn't realize that the drop in interest rates was not adequately stimulative.

Having said that, I would say I can't see getting inflation down from 5 percent or a little more, which is what it was, to the 3-percent area without having something like a recession. So, I believe one would have occurred in any event. And after the fact, I find that the policy that we had struck me as a relatively good one, given the nice expansion we are now having as a result of it.

Mr. SPRATT. I asked this question also of Mr. Greenspan. Specifically, which of the indices, which of the economic indicators that would be useful to rely upon are the most unreliable at the present time? We have had a few suggestions from Bob Reischauer, who has complaints about the quality of labor market statistical reporting right now.

Mr. Wyss, I believe you, in particular—and maybe Mr. Axilrod, also focused on preliminary data so that good timely data is there. The end data tend to get worked out pretty well, but the timeliness of it is critical if policy is going to be implemented soon enough.

Trade data is notoriously flawed nowadays for various reasons. Could you give us your own individual catalog of those things that are particularly unreliable, seem to have deteriorated or not kept pace with changes in technology or changes in our economy?

Mr. WYSS. Well, I would like to mention just two things. No. 1, I think the biggest problem is not necessarily the individual data series right now but the lack of coverage of the service sector in almost all the economic data that is being produced today.

We undercount the service sector in the employment data. We undercount it in the GDP data. We undercount it in sales data. We really need to pay more attention because that is now over 80 percent of employment in this country.

The employment data is a very interesting case right now because it illustrates the problems that are caused by improving the series. The Labor Department changed the methodology through which it collects the household survey of employment beginning in January of this year. The problem with that is we are now using a new methodology, but we are still using seasonal adjustment procedures based on the old methodology.

That is wrong. We know it is wrong. We just don't know what the correct seasonal factors are, and we won't know until we have at least 5 years of data. That won't be until 1998.

We also don't know what the cyclical behavior of the new series is. I believe that the new series is going to prove to be more cyclically sensitive—that the unemployment rate is going to vary more under the new methodology than it did under the old methodology.

If that is true, we may be overestimating where we think full employment is. Full employment may actually not have gone up as much as the revision in the unemployment rate which we saw last year would indicate. I am not sure of that. I won't know it until we have experience through at least one economic cycle. But that is my suspicion right now.

Mr. SPRATT. Mr. Dornbusch.

Mr. DORNBUSCH. I will give importance to the CPI and the employment numbers because they are essential to public discussion, and it doesn't really help if everybody can say that is the number but here is my adjustment to it. The clear bias in the CPI makes that particularly simple unlike on the employment side. I think it is an extraordinary problem not to know where one is to that much of an extent.

Mr. AXILROD. I haven't done much research on it. My impression is, just thinking from a market perspective, that the incoming data on, for example, retail sales, which I think are very important because the Fed looks for every clue it can as to what is going on right now, have at times been misleading.

I think that data has probably deteriorated substantially and probably been revised substantially from one month to the next. I dimly remember times when the gyrations have had market effects, and I would imagine that could be influencing policy judgments.

But let me also second the concerns about the price data, which is not only a matter of statistical measurement but a matter of concepts, how to fit quality improvements in. If we are getting to the point, as I believe we are, where inflation is going to accelerate, I don't believe we want to be in a position of thinking necessarily that going from 3 to 3½ to 4 is getting us into an era of extreme instability of inflation if after quality improvements and such like are taken into account you are really going from 1½ to 2½. It is that kind of issue I think that is very crucial now for policy judgments.

And I would like to underline the need for both a conceptual and a statistical understanding of where we are in prices.

Mr. SPRATT. Mr. Wyss, I think you indicated in your testimony—I wrote it down here—one of you indicated that we are cutting back resources on data collection and on data compilation, and all of you have indicated that the conceptual framework for data collection and analysis and compilation is lagging changes in the economy.

What is the best way to approach this? If we spend more money on it, should we create a central government agency which is solely responsible? An independent agency also so it is not biased by the Labor Department or biased by the Commerce Department, but it is rigorously independent and rigorously professional?

Mr. WYSS. I spent 4 years living in the United Kingdom, and I have worked quite a bit with the Canadian data. Both of those countries have moved to central statistical offices. Having a central statistical office does not solve all your problems, but it does permit you to create a staff of professionals that can really start thinking about how to collect data, that can be relied on perhaps to be a little more independent and a little more professional over the years than the current system which divides up responsibility among 4 or 5 different agencies.

So, I am a fan of moving toward a single statistical office. That by itself is not going to solve the problems, but it is a good step.

Mr. SPRATT. Mr. Dornbusch, do you basically agree?

Mr. DORNBUSCH. Yes.

Mr. SPRATT. Mr. Axilrod.

Mr. AXILROD. Mr. Chairman, I think there is one point I would like to add. We are in a difficult budgetary time in the United States, and have been for 10 or 15 years. So, the government has cut back on statistical programs, which appears easy to do.

An important cost of statistical programs are the data breakdowns that respond to particular needs of private sector participants. I would think that it would be desirable for someone in government to figure out what are the essential series we want for public policy purposes, including of course monetary policy, and how to improve them.

If we do that, now that may become more costly. I would be prepared to remove some of those other data series or breakdowns which have mainly served various private sectors. That is a perfectly good reason for collecting data of course, but if the government can't finance that, then perhaps obviously the private sectors can finance it; in effect, the private sectors should buy it through a fee or whatever if the compilation is to be preserved.

So, I would tend to want to try to move in that direction. Find what is essential for policy, make sure that is funded. Other things for which we don't have the funds, try to organize a fee system for it.

Mr. WYSS. I would point out that actually is done already on some of the data series.

Mr. AXILROD. I am sure it is——

Mr. WYSS. No. For example, the shopping center institution pays the retail sales people to compile specific lists that they need for their purposes; and they are charged for that about $100,000 a year, as I recall, to do that. And I think that could become more general.

But one thing I would like to point out too is that we have a lot of statistics that are really embodied in legislation which have outgrown their usefulness in many cases. Some of the stuff we do, for example, the detail we collect in the census of housing is a very expensive set of numbers to collect. And frankly, we could do that much more cheaply by using survey techniques rather than doing house-by-house counts.

I think Congress could actually cut costs and free up some costs to improve the statistics that we have elsewhere in the economy by eliminating some of the archaic series that we currently collect and the archaic methodologies that we use to collect them.

Mr. SPRATT. I have got some more questions, but let me share my time with Mr. Green.

Mr. GREEN. Let me say I appreciate the comments, Mr. Wyss, because I understand although the very best way to verify that is literally go house to house, and I guess the concern from the earlier questions we had of Mr. Greenspan is that sometimes those surveys are not as accurate, you know, 6 months afterwards or a year afterwards as they should be.

But I understand that, particularly when you classify computers as manual equipment, and I would hope that we could change that.

One of the things that I would like to ask of all the panel is whose job is it to recommend these changes in this data? I mean should we do it as Members of Congress? Or it seems like that would be available now to the Department of Commerce or the Census Bureau or Bureau of Labor Statistics on the way these things are measured. I know there is already some criteria in the Humphrey-Hawkins bill that are spelled out.

And also, if you would along with that, the other question was I know other countries, particularly that are moving into post-industrial, are seeing the same problems with the data collection, and particularly relating to the service economy that you have talked about, and also Chairman Greenspan, and how are they responding? Do we have any other examples of countries who are doing that much better than what we are doing?

Mr. WYSS. I would say the lack of a central statistical office is part of the reason why there is nobody recommending changes in the data. The responsibility is so split up that there is no one with overall responsibility for deciding what data needs to be collected, how the data needs to be changed, or how you can most efficiently collect it. Someone needs to decide what not to do in order to free up funds to do what should be done.

I think the countries that are doing the best job of adjusting to the modern economy are those that have developed central statistical offices, and I would cite Canada and the United Kingdom as particular examples. Their economies may not be doing all that well, but they know how to measure them.

Mr. GREEN. But at least they can count it.

Thank you, Mr. Chairman.

Mr. SPRATT. Thank you, Mr. Green.

Mr. Axilrod, when you were at the Fed, did the Board conduct a formal or systematic process of contingency planning? Did you, for example, work through alternative scenarios on a trial basis to see whether this policy might work better than that policy?

Mr. AXILROD. I don't remember contingency planning in relation to open market policy, but I have very vivid memories of contingency planning in relation to the discount window and potential for problems in thrift institutions and banks.

Mr. SPRATT. Would you game out different decisions before implementing those decisions?

Mr. AXILROD. We did that in the discount window area and in order to determine what the decision points would have to be should we come to a real situation. Yes.

In effect, the answer to your question is yes.

Mr. SPRATT. Part of our inquiry here is directed at finding out whether or not given the judgmental quality of so much data that has to be acted upon, relied upon and used in decisionmaking, at bottom what the Fed is doing is relying upon the judgment of its Governors and the President of the New York Fed and key players in the Federal Open Market Committee. And, if so, whether or not this kind of a personal judgmental factor carries from Board to Board, Governor to Governor, or is simply lost when those members pass on or leave the Board?

Mr. AXILROD. Mr. Chairman, perhaps it is also responsive to your question to mention that in viewing alternative open market policies—what would happen if you raise money growth to this and what would it do to that—in those days we did use the econometric models the Board has, which in a sense is a kind of game playing.

I found that over time not to be very useful because one didn't really need to run a model to know the predicted outcome after it had been run enough—had its results enough times.

It tended to be symmetric on tightening versus easing and didn't change with current conditions. So, I began to feel personally that qualitative judgments presented to the committee related to, say, the asymmetries that might occur in tightening versus easing or to the timing of change under current circumstances were crucial additions to the pure model.

So the model was useful, but I don't think you can really in our world get away from judgment.

And, of course, it is valuable to have a staff memory, in effect, for these various judgments to be carried forward. But also the FOMC keeps detailed records of the discussions.

Mr. WYSS. One thing I should mention is that I was running that staff model for a good part of the time while Steve was there.

I think, though, a staff model in many respects gives you a baseline to work from. The fact is that once you have run the model

and you have done 15 or 20 different versions of monetary policy, I, like Steve, got to the point where I could give you the answer without running the model. But that is because I had run the model several times, and I knew what the answer was based on those historical equations that we had available.

I think there is no escaping the fact that you have to look at the statistics. You have to look at relationships between the statistics and spend a considerable amount of time crystallizing those into rules of thumb that you will then end up using to structure policy.

Mr. DORNBUSCH. I would add to that the fact that the presence of a model that is done from historical data keeps forcing you into realization that the economy is changing and the model has to be redone.

Mr. SPRATT. The model is outdated.

Mr. DORNBUSCH. And the new model has to be fed to the Board. I think that process is really a very fertile one to keep up with the imperfection of the data, and I think that is well done at the Fed.

In fact, what you find in textbooks on monetary policy comes from the staff of the Federal Reserve.

Mr. SPRATT. In one way or another you all indicate that, as Mr. Wyss puts it, I think, uncertainty abounds. There is considerable imprecision. The market knows that.

Do we see this reflected in inflation expectations? Is there an uncertainty factor in the market simply because they don't know how the Fed may model its decision or exactly which aggregate or which variable will be relied upon this time when the decision is made? Is there a premium for that uncertainty that is being paid in the financial markets?

Mr. WYSS. Oh, I think clearly you are paying a large premium on that. You can see that very clearly in the steepness of the yield curve in recent years as inflation uncertainty has risen in the marketplace.

You are paying a premium to borrow long-term money. We did an analysis. If the Treasury had continued borrowing short term at the same rate they were borrowing in the late 1970's—if they had kept the maturity structure of the debt the same way as it was in the late 1970's before the inflation surge—interest payments by the Federal Government today would be $180 billion less than they are.

Mr. SPRATT. Mr. Dornbusch.

Mr. DORNBUSCH. I disagree. If I understand your question, is there a premium in interest rates and in inflation rates that is due to the fact that the Fed operates with imperfect data, I think maybe a tiny little bit of that. But there is no assumption that that bias would be positive. The imperfection could, in fact, turn them into hawks so that everybody fears deflation.

I think there is a lot of uncertainty about what the Fed has in mind when they say stable prices and whether 3 percent is the threshold or 4——

Mr. SPRATT. That is the question I was building up to next. Now, you are an advocate of having the Fed be much more explicit about what its inflation targets are.

Mr. DORNBUSCH. The Fed and the Congress—I think they need each other in defining what are the inflation targets. Yes, sir.

Mr. SPRATT. How would that help the situation? For example—first of all, how does the Fed normatively determine what inflation should be? I mean there would be those who say it should be zero. That is a normative ideal.

But on the other hand, many of us would say it is not worth the tradeoff in terms of full employment to drive the economy down to zero inflation.

So what is the resulting target? What is the goal?

Mr. DORNBUSCH. I think the Fed never makes that decision. The Fed decides whether now is the time to raise rates or not and by how much. But if you ask that question continuously, and you say well, perhaps the economy is turning down and we don't really need to, you never really need to discuss whether you have a 1- to 3-percent inflation target, and I think that is the process we are in.

You still have the technical issue, once you have the target, how to implement policy to know where the economy is moving and how to stay in sight. But having no target gives extra uncertainty.

Mr. AXILROD. Mr. Chairman, in general I would be unwilling to give the Fed a specific inflation target and let that be all that guides it at this time, even though in general, it is obvious that they should try to keep inflation down.

But second, the Congress has a very easy way of determining what the Fed thinks about inflation. It hasn't yet taken advantage of that. You have twice a year the Humphrey-Hawkins hearings. In those hearings the Fed gives what it calls its projections of real GDP and price increases. The Fed gives them as projections because it really doesn't want to give particular targets, because sometimes those projections are unsatisfactory for now, whereas, over the long run they hope for something else.

The Congress, to my knowledge, has never really made an effort to force the Fed to say whether this projection of 3½ percent price increase, or whatever the number given, is acceptable; whether that is what they are targeting.

It is easy to answer. No, I am not targeting that. I am going to have it lower later. But the Congress has never forced the issue with the Fed, and I think partly the reason is that the Congress itself is unwilling to bite the bullet in that regard. A certain fuzziness in the short-run relationships between inflation and growth suits everyone's purpose.

But there is a perfectly good mechanism now available to focus on this issue. What does the country want to do about bringing inflation down and to what extent? The Humphrey-Hawkins hearings can be used for that.

Mr. SPRATT. So, rather than accepting the Humphrey-Hawkins semiannual report as just an economist construct of what may happen, we would give it our imprimatur as to what ought to happen and send it back to the Fed in that form? If we disagreed, I guess we could raise the inflation rate, lower the inflation rate, direct the Fed to trade off more in favor of employment, full employment——

Mr. AXILROD. In some ways that is right. It can be used to get at what Professor Dornbusch is mentioning. How hard do you want the Fed to fight inflation under current circumstances? That is the actual practical question.

Mr. WYSS. You do have to be careful with the tradeoffs though when you do that, because as Chairman Greenspan mentioned earlier, there probably is no long-term tradeoff between inflation and unemployment. There is clearly a short-term one.

But you do run the risk, if you try to make your targets too short term, of losing track of where you want to be 3, 4, or 5 years from now. I think that is a problem with getting too specific on near-term targets.

Mr. SPRATT. Mr. Dornbusch, you have discussed the rather limited possibilities for exchange rate intervention in your testimony to stabilize or damp down the fluctuations in the value of the dollar. Do you think that some mechanism should be devised to moderate speculative short-term movements of capital in order to dampen the fluctuations?

Mr. DORNBUSCH. I certainly think it is desirable to dampen the fluctuations. I do believe that if the United States, like other countries, had a clearer inflation target, that would help. But I also believe that a financial transaction tax would go well in that direction.

Mr. SPRATT. With short-term financial investments?

Mr. DORNBUSCH. Professor Tobin years ago had a proposal like that. Under Secretary Summers in an earlier existence strongly advocated that, and I certainly believe it would do the right thing. There are implementation issues that are major, but it certainly is well worth considering.

Mr. SPRATT. One final question, Mr. Wyss. Does DRI/McGraw-Hill do any primary data gathering to supplement your official data sources?

Mr. WYSS. We do not any longer do any primary data gathering within the United States. We used to collect some data on investment surveys, but we gave that up because we couldn't find anybody who was willing to pay us enough money to warrant continuing it.

We do some primary data gathering in Europe, primarily in the automotive and truck area.

Mr. SPRATT. It seems that everyone agrees that our economy has changed fundamentally in moving into being a services economy over the last 25 years, and yet we have not kept pace with measuring productivity in services or even output of services or their prices.

Methodologically, what would you propose to get a better grip on this?

Mr. WYSS. Well, actually, part of what has to be done is conceptual, rather than methodological. We have to decide what we mean by quality and be prepared to make some good guesses as to what is actually happening in these areas. There have been a lot of studies using hedonic price indexes and other statistical methods, measuring quality changes and price changes in the service sector. We have never adopted this at a national level in the statistical offices.

A lot of the work has been done academically, and I think everyone thought we accept the fact that it is not perfect, that there are a lot of problems with it. We need to bite the bullet and make our

best guess, use our best estimate of what is really happening out there.

Mr. SPRATT. Do the others of you have anything to contribute?

Well, I always thought that my "Think Pad" was a lot more efficient than my old Smith Corona, but you even shed doubt on that with your testimony since it sits in the corner so much.

Look, we very much appreciate your coming here, your forbearance and staying for the duration of the hearing, and the time you have taken to present this testimony. We appreciate your contribution, and we have benefited from it greatly.

[Whereupon, at 12:15 p.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]

APPENDIX

MATERIAL SUBMITTED FOR THE HEARING RECORD

CBO TESTIMONY

Statement of
Robert D. Reischauer
Director
Congressional Budget Office

on the
Sources of Uncertainty and Forecasting Bias
for Monetary Policy Analysis

prepared for the
Subcommittee on Commerce,
Consumer, and Monetary Affairs
Committee on Government Operations
U.S. House of Representatives

August 10, 1994

CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515

Mr. Chairman and Members of the Subcommittee, the Congressional Budget Office (CBO) welcomes the opportunity to submit this statement for the record on the measurement and data problems affecting the analysis of monetary policy.

The commingling of fundamental changes in the global economic and political environment, revolutions in technology, and shifts in the economic and financial structure in the United States have raised questions about whether it has become more difficult to forecast the economy and conduct monetary policy. The breakup of the Soviet Union, the ascendence of Asia, and the resurgence of Latin America have placed many more countries in competition for the pool of global saving in world capital markets. Simultaneously, widespread application of new advances in information processing and telecommunications has created closer links among world capital markets. Shocks are transmitted more rapidly and widely, and interest rates, equity values, and commodity prices within nations are subjected to greater international influences.

In the United States, the composition of output and employment has changed, partly because of the revolution in technology. In addition, the financial system has also changed. Banks and thrifts play a lesser role than they had in channeling funds from lenders to borrowers, and other intermediaries such as mutual funds and pension funds play a greater role. The

changes have come about, not only because of advances in technology, but also because of regulatory shifts in the aftermath of the thrift agony and near crises in banking and insurance. Under these circumstances, it is natural to ask if uncertainty has increased about the economy and the best monetary policy to pursue.

HAS UNCERTAINTY INCREASED?

The answer is unclear for at least three reasons. First, uncertainty about growth is probably not greater today than it was 10, 20, or 40 years ago. Some aspects of the economy that cause uncertainty now were not important years ago, but others are less troublesome now than they were before. For example, although the greater importance of trade during the 1980s complicates today's growth projections--because forecasters must take into account growth abroad--petroleum markets are calmer than they were in the 1970s, and analysts know more about the role of energy in the economy.

Second, a major cause of uncertainty is related to the business cycle, not to long-term changes. For example, it is more difficult to make projections when the economy appears to be near full employment than when it is in the early stages of an expansion.

Third, measures of the variability of quarterly gross domestic product (GDP) growth suggest that the 1980-1993 period was much less erratic than either the 1947-1959 period (when post-World War II recovery, the Korean War, and frequent labor strikes challenged the new science of economic forecasting), or the 1973-1979 period (when oil shocks and floating exchange rates created new issues for forecasters). In fact, during the 1960-1972 period, deemed by many the golden age of economic forecasting, the variability of GDP was virtually the same as it was in the 1980-1993 period (see Table 1).

Moreover, recent errors in forecasting real growth do not seem to be worse than they were in the past. For example, the Congressional Budget Office's errors in forecasting during the recent recession were about the same as those made during the 1981-82 recession, and errors made during the expansion of the 1980s were similar to those during the expansion of the late 1970s (see Figure 1).[1] Other forecasters had similar records. It is easy to argue that the sources of uncertainty surrounding forecasts of real growth are different now than in the past--an inherent feature of uncertainty. But it turns out to be difficult to argue that the uncertainty itself is significantly greater now than it was in the past.

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1. For further discussion, see Congressional Budget Office, "Appendix A: Evaluating CBO's Record of Economic Forecasts," *The Economic and Budget Outlook: An Update* (September 1993). CBO's summer 1994 update will contain revised forecast errors based on the Commerce Department's recent revisions to GDP.

Even if GDP growth is not more variable, historic changes in the global economy, technology, and the economic and financial systems of the United States may still have made monetary policy more difficult to conduct. In the mid-1980s, the Federal Reserve changed from one monetary aggregate, M1, to M2 and M3 as the changes swept through the financial system; the Federal Reserve eventually abandoned operating targets for M2 and M3 in 1993. Even here, however, it is not clear whether the recent changes in the operating targets of the Federal Reserve--from monetary aggregates to interest rates, real growth, employment, and inflation--are a response to a radical increase in difficulty or just another evolutionary step in policy analysis and formulation that mimics changes in the economic environment. Indeed, as the economy and financial system change, it would be surprising if the indicators of monetary policy did not change as well.

Monetary aggregates themselves have always caused problems when used as operating targets. The Federal Reserve has on numerous occasions during the past 33 years changed the definition of monetary aggregates to adjust for financial innovations.[2] Moreover, the emphasis the Federal Reserve has now accorded to interest rates--the federal funds rate, the spread between long-term and short-term rates, and inflation-adjusted interest rates--

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2. For a recent discussion, see Richard Anderson and Kenneth Kavajecz, "A Historical Perspective on the Federal Reserve's Monetary Aggregates: Definition, Construction and Targeting," *Review, Money Stock Measurement*, vol.76, no.2 (Federal Reserve Bank of St. Louis: March/April 1994), pp.1-33.

is not new. That kind of emphasis characterized much of the post-World War II period before monetary aggregates were experimented with in the 1980s. Even before the creation of the Federal Reserve, Swedish economist Knut Wicksell advocated focusing on interest rates when financial innovation made the monetary aggregates difficult to interpret.[3]

Fluctuations in international currencies probably have not complicated the assessment of monetary policy recently as much as they did in the past. Although there is much to be learned about the sources of currency fluctuations, economists know a good deal about the consequences of such fluctuations for growth and inflation. Generally, currency fluctuations are not important for forecasting the economy, largely because their impact on trade, and consequently growth, tends to be spread out over a long period.

Complications have arisen at times, however, when policymakers have tried to maintain exchange rates at levels that private markets deem unsustainable. Some countries belonging to the European Community's Exchange Rate Mechanism (ERM) have recently faced the hard choice of either maintaining their exchange rates within prescribed ERM bands through relatively high interest rates, causing their economies to slow, or abandoning

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3. Knut Wicksell, "The Influence of the Rate of Interest on Commodity Prices (1898)," in Erik Lindahl, ed. *Knut Wicksell: The Selected Papers on Economic Theory* (Cambridge: Mass.: Harvard University Press, 1958), pp.67-92.

the ERM to promote growth. Although the United States does not face this issue now, a similar problem arose frequently before it adopted a floating exchange rate in the early 1970s. During the recent bout of dollar fluctuations, much attention was paid to the yen, against which the dollar has fallen to historic lows, but surprisingly little attention has been paid to the more important trade-weighted value of the dollar, which has stayed within a moderate range of variation (see Figure 2).

Many aspects of uncertainty can lead to errors in monetary policy. They can be broken into four categories:

- Inadequate data about the economy;
- Inadequate understanding of the behavior of the economy, given available data;
- An error in forecasting an event that is known in advance to be important and possible, such as changes in fiscal and monetary policy overseas; and
- Totally unforeseen shocks (such as the Iranian revolution in 1979 that caused an increase in the price of petroleum).

CBO can add little in this statement to the understanding of the last three types of uncertainty listed above. Economists constantly try to improve their understanding of the economy's behavior--the second type of uncertainty listed above. One timely example is the effort devoted to the question of how

close the actual rate of unemployment is to the nonaccelerating inflation rate of unemployment (NAIRU). Analysis based on estimates of employment and the labor force place the unemployment rate close to NAIRU, but analysis based on help-wanted advertisements place it further away. A review of all of the possible avenues of inquiry, however, would be a monumental task.

The third and fourth sources of error--errors in forecasting policy moves and unforeseen shocks to the economy--together probably account for a substantial fraction of forecast errors, but it is difficult to know how economists can help reduce them. Economic forecasters make their best judgement calls on the likely course of policies abroad and politics at home, or at least monitor the outlooks of those who are better placed to form such judgments. And unforeseen shocks are by definition unknowable, though modelers always try to expand economic knowledge into the unknown.

CBO, however, does have something to add regarding the first source of uncertainty: the limitations of current data. Although CBO has not formally studied gaps and inadequacies in macroeconomic data, it has contributed to an analysis that the Government Accounting Office is performing at the request of the House Committee on Banking, Finance, and Urban Affairs.

Inadequate data could affect the formulation and assessment of monetary policy in three major areas:

- *Measuring Inflation.* The general population may be misled by inflation mismeasurement and Federal Reserve policy could thus be affected.
- *Assessing the Risk of Future Inflation.* A wide variety of data, particularly that regarding the tightness of labor markets and capacity utilization, are used to determine if the economy is nearing a point at which inflation is likely to increase. Improvements of data in this area could aid monetary policy analysis.
- *Assessing Credit and Money Conditions in the Economy.* Better data for analyzing how changes in monetary policy affect the supply of and demand for credit and money in the economy could also help in analyzing monetary policy.

MEASURING INFLATION

The consumer price index (CPI) and broader measures of prices may overstate inflation. The CPI probably overstates inflation because of a technical error in the way outlets and items are changed in the sample and because it is difficult to account properly for the introduction of new goods and quality changes in existing products. In addition, the housing component of the CPI often displays unusual and puzzling variations that make it difficult to assess the overall CPI.

Broader measures of inflation, such as fixed-weighted price indexes for consumption and other components of GDP in the national income and product accounts (NIPAs) may also be misleading. The NIPA price index for consumption is affected by the same problems that affect the CPI, and the price indexes for investment goods and government services may also be distorted. Studies indicate that the price indexes for communications equipment and other electronic goods that are included in the investment price index may fail to account adequately for changes in quality. In addition, the prices of many services, including those of government services, may also not reflect improvements in the quality of those services. Numerous innovations in providing banking, insurance, communication, and recreational services are not fully accounted for in the price indexes.

The Federal Reserve is aware of these problems of measurement in price indexes and presumably takes them into account in its assessment of inflation. Because the indexes are disseminated widely, however, the public also uses them to form its own assessments of inflation. Consequently, the presence of bias could lead the public to form views of inflation that are exaggerated when compared with the views held by the Federal Reserve. That in turn could influence interest rate levels because of the expectations of inflation that are embedded in interest rates. In addition, if the CPI does overstate inflation, measures of real wage, productivity, and real GDP growth

will be biased downward, distorting the perception of trends in the U.S. economy.

A research effort by the Bureau of Labor Statistics and the Commerce Department into the various sources of bias would provide useful information about the possibility of inflation mismeasurement by the CPI and broader price indexes.

ASSESSING THE RISK OF FUTURE INFLATION

Efforts to forecast inflation one or two years in advance--roughly the amount of time that monetary policy needs to contain inflationary pressures--rely on a wide variety of data. Conditions in labor markets are particularly important for forecasting inflation. Therefore, improvements in the collection of wage and layoff data and job vacancies, to name a few, could improve policy analysis.

Because forecasting inflation entails predicting total GDP growth, knowledge about virtually every aspect of the economy is useful. That knowledge could be improved in several ways.

First, the Consumer Expenditure Survey (CES) could be amended to include tracking individual households over time (a longitudinal survey) and expanded to obtain additional information. For example, current estimates of debt burden are derived from Federal Reserve calculations rather than from survey information. The CES could be expanded to include information on consumer debt and debt payments that together could produce an improved measure of debt burdens. The CES could also solicit information about financing trends, as in the case of automobile leasing, which has increasingly taken the place of outright purchases.

A second improvement would be the publication of separate detail for the computer and other dynamic electronics sectors, similar to that published for motor vehicles. In order to avoid distortions and the misuse of the NIPA data, it is often appropriate to separate the computer component from various aggregates, such as total investment or inventory accumulation, which is not always possible to do with the currently published data.

A third improvement would be to speed up the production of the input-output accounts to enhance the timeliness of analyses on a wide variety of issues. Knowledge of interrelationships among industries is extremely important for analyzing the effects of trade, tax, environmental, and other

policies on specific industries, work forces, and regions, as well as more fully understanding the national effects of such policies.

ASSESSING CREDIT AND MONEY CONDITIONS IN THE ECONOMY

Although an enormous amount of useful financial information is available for assessing the impact of monetary policy on the economy, some gaps in data on money and credit still exist, hindering our ability to monitor the monetary transmission process and therefore our capacity to assess the full range of the impacts of money and credit flows. Credit for small businesses is one important gap. Currently, three sources of data are available that, taken together, still provide an incomplete picture of credit to small businesses:

- The Federal Reserve Board's *Flow of Funds* publication gives estimates of balance sheet data for a subset of small businesses --the noncorporate business sector, which includes partnerships, sole proprietorships, tax-exempt cooperatives, and individuals who rent nonresidential structures. But these estimates are not useful because they artificially assume that a constant 50 percent of business loans by thrifts, finance companies, and asset-backed issuers go to the noncorporate sector.

- The Federal Reserve Board's *Report of Condition and Income* offers data on small bank loans (original amounts of less than $100,000; $100,001-$250,000; and $250,001-$1,000,000) secured by nonfarm nonresidential real estate and commercial/industrial loans. But these data omit credit from nonbank sources such as finance companies that have become major competitors of banks.

- The Department of Commerce's *Quarterly Financial Report* gives balance-sheet data for all manufacturing, mining, and wholesale and trade corporations and for corporations with assets under $25 million. But these data omit the service sector as well as noncorporate businesses engaged in the four types of covered activities.

It is hoped that the Federal Reserve's *National Survey of Small Business Finances*, which will be conducted annually as mandated by the Federal Deposit Insurance Corporation Improvement Act of 1991 (Public Law 102-242, section 477), will help to narrow this gap.

The absence of an estimate of the amount of currency held outside the United States constitutes a second gap. It is currently counted with the amount of currency held by the domestic public. Because currency is a component of the monetary aggregates (M1, M2, and M3) and of the monetary base (currency outside banks plus reserves of the banking system), all of these measures cannot fail to be overstated. Although the Federal Reserve is not currently using the monetary aggregates for policymaking purposes, some private forecasters still use them and more widespread use of them may return if the pace of the latest period of financial innovation eventually subsides. Apparently, the Federal Reserve has produced rough estimates of currency held abroad. If these estimates were made public, they might be useful for analyzing monetary policy.

THE COSTS OF COLLECTING DATA

Unfortunately, additional data collection has costs as well as benefits. If it places a large reporting burden on the private sector, or requires a large budgetary outlay from the government, the costs could be high. Any benefits of having the data for improving policy analysis must be balanced against the likely costs.

Some of the suggestions made in this statement could be carried out less expensively than the others. For example, among those improvements that could take place in data gathered by the Commerce Department, the more timely publication of input-output accounts and improved data for service prices in the federal sector of the NIPA seem least costly to pursue. By contrast, producing improved data about service prices in the private sector could be much more costly.

Table 1.
MEASURES OF VARIABILITY OF THE GROWTH OF REAL GDP
(Based on quarterly growth at annual percentage rates)

Period	Standard Deviation	Largest Value	Smallest Value	Average Value
1947Q2-1959Q4	5.0	15.9	-8.5	3.7
1960Q1-1972Q4	3.3	10.4	-3.0	3.9
1973Q1-1979Q4	4.4	13.5	-8.7	2.7
1980Q1-1994Q1	3.5	11.3	-9.9	2.3

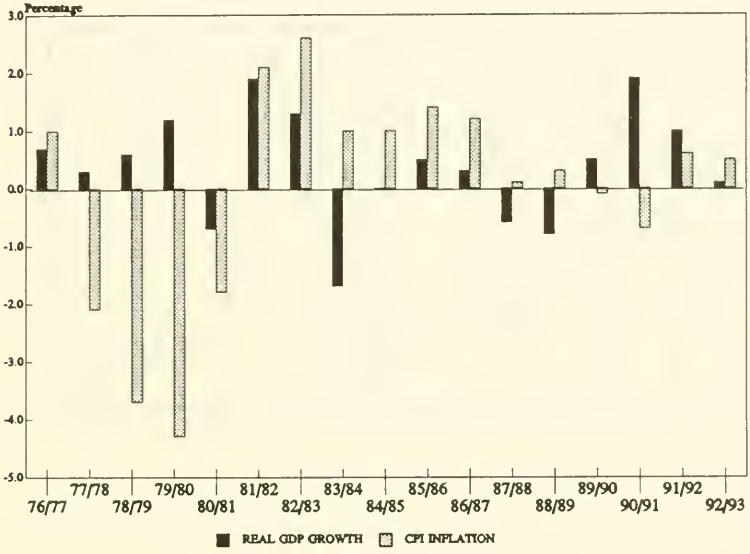
SOURCE: Congressional Budget Office calculations based on Commerce Department data

NOTE: The standard deviation is the width of a range of growth rates that encompasses roughly two-thirds of the growth rates experienced during the period. It is a widely used measure of variability.

Q = Quarter.

Figure 1.

CBO'S AVERAGE OF TWO-YEAR FORECAST ERRORS FOR THE GROWTH OF REAL GROSS DOMESTIC PRODUCT AND THE INFLATION RATE IN THE CONSUMER PRICE INDEX (By calendar year, errors in percentage points)



SOURCE: Congressional Budget Office.

NOTE: Errors are computed as forecast values minus actual values.

Figure 2.

THE TRADE-WEIGHTED VALUE OF THE DOLLAR

SOURCES: Congressional Budget Office; Federal Reserve Board.

NOTES: Ten-country trade-weighted index in relation to the currencies of Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, and the United Kingdom.

Quarterly data through the second quarter of 1994.

Vertical lines represent business-cycle peaks and troughs.

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